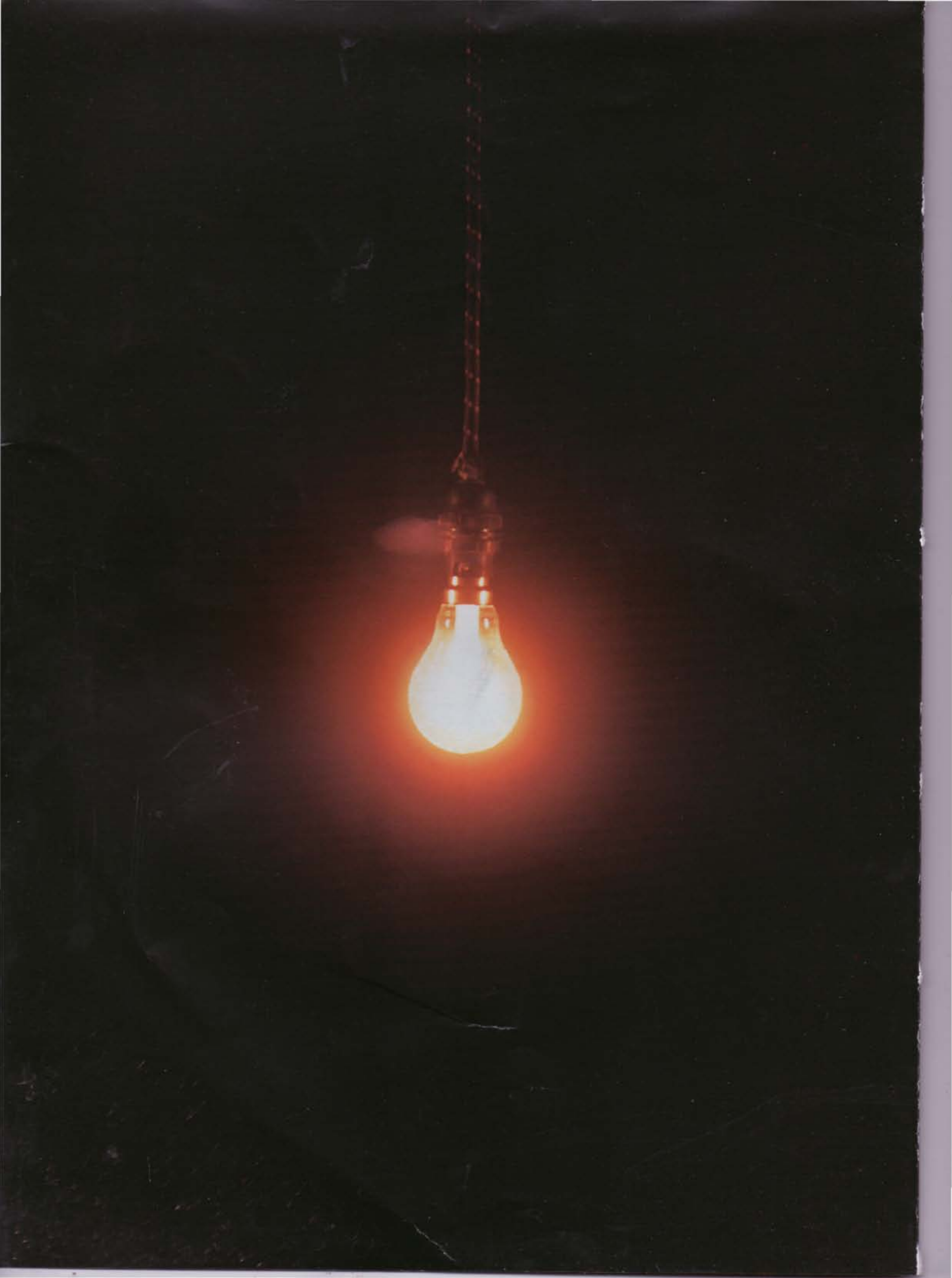


The future of interactive entertainment
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beyond Wipeout
Saturn 2
the 3Dfx connection
Metal Gear
Konami infiltrates the PlayStation superleague
Not since the release of Resident Evil and Tomb Raider have PlayStation owners had genuine reasons to get excited. Konami's forthcoming blend of tactical espionage and shoot 'em up could be just what Sony needs to recapture ground from a rival gunning with 64bit ammo...
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Just as the PC is fast becoming the platform of choice for game players wanting the state of art in interactive entertainment, so the format is gradually ushering in a new wave of unity for the videogame industry. Rumours that Sega is planning to incorporate 3Dfx accelerator technology in its next console come at the same time as Intel announcing a coin-op platform also based on the same hardware.

For once the disparate factions of the videogame industry have a chance to assimilate around a core of PC technologies that should foster the development of quality videogames. With Sega's next console sharing 3D hardware with both PC accelerator cards and arcade machines, there should be no excuse for a fumbled Saturn 2 launch. Sega will be counting on the PC market to carry it forward just as much as its own internal R&D – a wise move given its lacklustre performance recently.

But while it seems assured that the PC is the machine that will spearhead the 3D graphics revolution – enforced obsolescence will mean technologies are recycled faster than in the console market – Sega's plans hint at the potential for the PC to be reinvented as a games machine. Intel and Microsoft are already hard at work on technologies that will turn the faceless desktop box into a game-playing dream. (And with a price tag to match, no doubt.)

But with the speed of change in the 3D accelerator market, what do Sony and Nintendo have up *their* sleeves? Will these companies also set their next consoles on a collision course with the PC? The prospects are truly fascinating.

The future is almost here...







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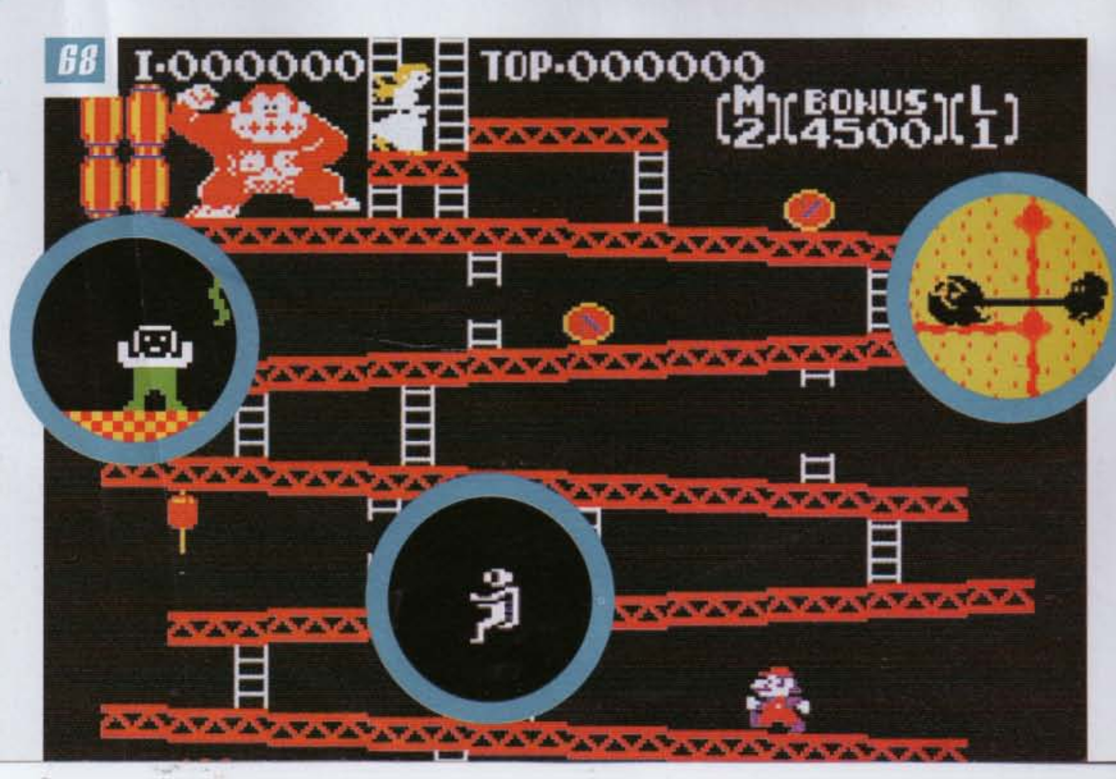


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THE LATEST NEWS FROM THE WORLD OF INTERACTIVE ENTERTAINMENT

Black Belt: 3Dfx muscles in on Saturn successor

Sega lines up silicon hotshot 3Dfx as a partner for its make-or-break successor to Saturn

Saturn 2 will happen by the end of 1998, and it will use PC 3D technology, according to industry insiders. Despite Sega's best efforts, the Internet gaming forums and chat groups are teeming with speculation and leaked information regarding the Saturn 2 project, codenamed Black Belt. As more details slip through the Net, a picture is beginning to emerge of the proposed superconsole.







Atari Games' *San Francisco Rush* coin-op currently uses two 3Dfx chips in tandem. The *Saturn 2* is expected to be more powerful still

Following the most recent spate of rumours, **Edge** has been assured by several industry sources that the system will indeed be based on the 3Dfx Voodoo Graphics chipset and not, as previously suspected, the rival PowerVR system from VideoLogic.

Lockheed Martin, which has its own Real3D chip, was ruled out early on, despite providing the power behind both the Model 2 and Model 3 Sega arcade boards. This apparent snub by Sega will no doubt cause the simulation company to take a close look at its current strategy: the chips are powerful, but too pricey to remain cost-effective in the cut-throat console market, where margins on hardware are slim.

In contrast, California-based 3Dfx has the advantage of designing its chipsets from the ground up, balancing power with the affordability required by the notoriously fickle PC market. If Saturn 2 does contain the Voodoo technology, then it almost certainly won't be using the first-generation 3Dfx chips found in current cards from Orchid and Diamond. As the console isn't due until at least late '98, it's much more likely to contain the next-generation silicon now under development at 3Dfx's Californian labs.

3Dfx is keeping the full specifications of its next chipset under wraps for the time being, despite the pressure from VideoLogic, which is gearing up for its imminent PCX2 launch. The 3Dfx rival spent the last month trying to convince developers and press alike that the 3Dfx bandwagon wasn't rolling at full speed. With the likes of Atari Games and Taito already committed to using the Voodoo Graphics technology for their coin-op titles, however, 3Dfx is gathering a global momentum that VideoLogic may find hard to match, despite its deep-pockets funding from NEC. Any question marks there may have been over the financial muscle of the 3Dfx company are likely to disappear when the outfit goes public this





The Voodoo Graphics technology, currently featured in PC cards, may power Saturn 2



Coin-op *Mace: The Dark Age* is a taste of the minimum power gamers can expect from Sega's Saturn 2 console



Ex Lockheed Martin employees have speculated that the next Sega console will have a similar spec to Model 2

summer. Sega has already committed itself to some 700,000 of 3Dfx's shares.

Microsoft is another company has been linked with the 3Dfx project since the outset, and also figures in the floatation proposal. With 3Dfx technology on the Black Belt board, the firm is certain to provide the code libraries via its Direct3D API. While the commitment of the world's most powerful OS company will be welcomed as a stabilising influence, there will doubtless be many developers who feel that Microsoft's involvement could ultimately restrict their coding sensibilities.

One industry source that **Edge** contacted expressed those very concerns. 'It will throw open development to a wider audience,' he admitted, 'but the console world revolves around making the hardware perform as well possible. Anything that gets between the programmer and the metal is a burden.'

The PC connection via Microsoft dovetails nicely with Sega's own future plans for its Sega PC range, and opens a useful development gateway between Saturn 2 and the lucrative Pentium market.

nSpace, which has recently completed PlayStation shooter *Tiger Shark*, has a unique perspective on Black Belt, as founder members **Greg Dyke** and Dan O'Leary were formerly with Sega partner Lockheed Martin. They believe that the current specifications should yield a console as powerful as Sega's Model 2 arcade board, but voiced similar concerns to **Edge**'s other source over the precise level of Microsoft's involvement.

'Good developers,' argues Dyke, 'will cut straight through the operating system to get to the metal as they need it. As long as Microsoft doesn't force its OS on the developers, it should be fine.'

With 3Dfx positioned to supply graphics technology, speculation now falls on the CPU. Sega is believed to be in talks with both Hitachi and Motorola to provide the driving force behind Black Belt. Hitachi, which provided the twin SH-2 processors for Saturn, is hoping its 200MHz SH-4 chip will win out over the more expensive Motorola PowerPC 603e. Both are

WITH ATARI GAMES AND TAITO ALREADY COMMITTED TO USING ITS TECHNOLOGY, 3DFX IS GATHERING A GLOBAL MOMENTUM THAT RIVALS MAY FIND HARD TO MATCH

The less-than-enthusiastic welcome that greeted the D3D libraries last year may force both Sega and Microsoft to loosen up on the development conditions, and to release microcode from the outset. This would avoid the belated thirdparty development witnessed on Saturn, regarded by many as the chief reason for Saturn's dwindling market share.



The CPU has not yet been finalised, but could well be Hitachi's 200MHz SH-4

powerful chips, with the PowerPC (available with clock speeds up to 240MHz and rising), having a slight edge over its competitor. Since the costly launch of the Saturn, however, Sega is likely to be looking for savings, which could ultimately rule the Power PC technology out.

Whatever the final specs, it does look as though Sega is making all the right moves. The choice of 3Dfx gives it access to unrivalled 3D performance at low cost, a ready-made development community already familiar with the technology and a platform for expansion into the ever-expanding PC market. Difficult architecture and poor thirdparty support, problems that have dogged the Saturn from launch, are being addressed; but getting the technology right is only half the battle, as Sony has proven so well. Without a world-class marketing push, an early Sega victory will be far from assured when the second generation wars kick off in '98.

3Dfx in demand

Total Immersion, 3Dfx Interactive's developers program, has had to close its doors to any new members following overwhelming demand for the service. Those developers already registered have access to inside information on 3Ffx products and partners, a communication channel with other members, Software Development Kits (SDKs) and a say in future 3Dfx chip features. There can be few PC developers now that aren't either currently working, or considering working, with Voodoo Graphics technology.



PC giants reveal plans to storm arcade market

Intel and Microsoft reveal details of a venture which could create a major coin-op force



Arcade cabinet maker Happ Controls has developed prototype PC coin-ops (above), as has rival company, Hanaho. Both will play major roles in the future of arcade PCs

Twin behemoths of the PC industry Intel and Microsoft have announced full details of a joint initiative which could revolutionise the arcade industry.

Intel has produced a hardware specification for an easily adaptable PC-based arcade machine, while Microsoft is committed to providing the operating system and evangelising the technology to softcos in an effort to attract game development. To complete the picture, arcade cabinet designer's Hanaho and Happ Controls have signed up to build coin-op machines based around the designs of both companies and distributor H.Betti Industries is set to introduce systems into arcades by the end of the year. Furthermore, several arcade titles which employ the proposed set-up have already been announced.

As with everything PC-related, the precise details behind this move are complex. Microsoft was approached two years ago by the Amusement Machine Operators of America board to help design a cheap PC-based arcade solution. Coincidentally, Microsoft, through its then-arcade evangelist James Palondon, was already looking for possible routes of evolution for the PC, and suggested using its own operating system and DirectX series of APIs as part of the architecture. The company also began talking to various game developers, chip manufacturers and arcade cabinet designers in an attempt to both drum up support for the arcade PC and try and arrive at a common spec. Since then, Intel, 3Dfx, Happ and Hanaho, have all jumped on board.

Intel's concept for an Open Arcade Architecture (OAA) calls for at least a 233MHz Pentium II, 32Mb of memory, a 3GB hard drive and a Quantum 3D Obsidian graphics controller based around 3Dfx's Voodoo Logic chipset. This would then be built into a coin-op cabinet and equipped with a COM port interface (to link with the cabinet's controllers) and a modem for network play. Games would run in an unmodified version of *Windows 95*.

Perhaps one of the most important aspects of the whole design is the fact that the CD drive is easily accessible to the arcade operator which means that when a certain game becomes unpopular, it can easily be replaced by a new title. Furthermore, the networking capabilities open up dozens of possibilities – including whole arcades based around multiplayer games such as *Quake*, *X-Wing vs Tie Fighter* and *Duke Nukem*.

For PC game developers, too, the benefits of an open arcade system are huge. It could represent a whole new market for games and be used as a testing ground or showcase for new titles. The idea already seems to be popular with development teams – Intel revealed three forthcoming OAA games (Greystoke's *Canyon Runner*, *Home Run Derby* from Interactive Light, and an as-yet-unnamed flight sim from Mango Grits) at last month's Computer Game Developers Conference in Santa Clara, and Scottish company Inner Workings is currently modifying its forthcoming flight racer, *Plane Crazy*, to be compatible with the system.





***Plane Crazy* is a flight racing game which takes full advantage of the DirectX5 software development kit. It is now being optimised for Intel's Open Arcade Architecture**





ONE OF THE MOST IMPORTANT ASPECTS OF THIS DESIGN IS THAT THE CD DRIVE IS EASILY ACCESSIBLE, WHICH MEANS THAT UNPOPULAR COIN-OPS CAN BE EASILY CHANGED

It is important to point out, however, that neither Intel or Microsoft are actually developing the Open Arcade Architecture – they are merely suggesting it as a possibility to arcade manufacturers and PC game developers. Intel's aim is to sell its Pentium II chip to a new market, whereas Microsoft, of course, is touting its operating system and DirectX APIs. It will be down to companies like Happ and Hanaho to develop machines based on Intel and Microsoft's specifications, and developers to produce suitable games – a typically open-ended PC set-up.



Scottish developer Inner Workings was encouraged by Microsoft to adapts its PC game, *Plane Crazy*, for use in arcade environments

Pentium II renders Pentium Pro obsolete

But chip manufacturer, AMD, already has a cheaper alternative ready to ship



The unusual appearance of Pentium II is thanks to Intel's new all-in-one cartridge which contains the processor and L2 cache in one, and will require PC manufacturers to redesign their motherboards

PC games enthusiasts searching for ever-faster machines will be excited by the launch of the Pentium II, Intel's fastest ever processor chip.

The Pentium II (known originally by the codename Klamath) is essentially the same as the Pentium Pro processor, but with the MMX instruction set. It comes in a new cartridge-style package (dubbed a Single Edge Contact Cartridge by Intel) containing the processor

INTEL RIVAL AMD CLAIMS THAT WHEN RUNNING *WINDOWS* 95 GAMES, K6 MACHINES WILL OPERATE FASTER THAN PENTIUM PRO PCS AND POSSIBLY EVEN PENTIUM IIS

and L2 cache, and hence cannot be slotted straight into existing Pentium Pro motherboards. Clock speeds at launch are 233MHz and 266MHz, with the 300MHz version set to appear in the third quarter of 1997.

The new cartridge packaging, which produced pre-launch rumbles of discontent among PC manufacturers forced to redesign their motherboards and retool their assembly lines, has produced one unexpected factor in the Pentium II's favour: its design will allow Pentium II system prices to be lower than anticipated. Gateway 2000, for example, unveiled a well-specified 233MHz PII machine with a pricepoint of £1,600 excluding VAT. There are question marks hanging over the new processor, however.

Minor bugs have been discovered in the floating-point system and, although these are not thought to affect anything but the most obscure software, Intel is working to patch and eliminate them. But perhaps the most surprising aspect of the new chipset is that it renders the Pentium Pro completely obsolete. Once PC manufacturers start churning out Pentium II systems in any sort of volume, the construction cost savings brought by the cartridge design will bring PII prices below those of the less powerful Pentium Pro.

Intel is initially positioning Pentium II machines as business servers and workstations, and until they are augmented with AGP (a fast bus protocol) and the proposed Auburn 3D solution (a fast 3D chip destined for games PCs) it is questionable whether they will turn out to be the fastest games PCs that money can buy. Although endowed with spectacular integer and floating-point performance (the latter being essential for fast 3D graphics), they are really designed to run *Windows NT* software, and will run 16bit software little faster than bog-standard Pentium boxes. Although the amount of 32bit *Windows 95* games on the market is steadily increasing, many popular games still remain rooted in 16bit MS-DOS days.

Intel says that lower construction cost was not the only consideration behind the new cartridge design: it has taken the opportunity to introduce a new high-bandwidth bus between the processor and the L2 cache, claiming that the standard Pentium's bus is about to reach the limit of its bandwidth. This claim looks set to spark a furious war with rival AMD, which has just introduced a new chip, the K6, which it sees as a Pentium II competitor in ballpark performance terms, but which fits into a standard MMX Pentium slot. AMD reckons that when running *Windows 95* – as opposed to NT – apps, such as games, K6 machines will operate faster than Pentium Pro PCs and possibly even Pentium IIs, yet should sport price tags more akin to MMX Pentium machines. The lack of ancillary chips to supplement the K6 has so far precluded testing these claims, but the first K6 PCs should be rolling off production lines very soon indeed.

Pirate pinched

Software pirates may face stronger sentences after a recent decision in Leeds Crown Court.

A man who was arrested after a raid on his home by West Yorkshire police revealed gold CD-ROM manufacturing equipment and thousands of copies of pirated software pleaded guilty to offences under the Copyright Designs and Patent Act of 1988 and the Trade Mark Act of 1994, and was sentenced to 18 months in prison. The sentence was suspended for two years after the court took the defendant's personal circumstances into account but informed him that a further offence would result in immediate imprisonment.

The case is hoped to bring about harsher sentences in general where such crimes are concerned.



AMD's answer to Pentium II is the K6 chip, already touted as a faster alternative

Another **Playstation conversion** arrives

As E3 approaches, key Nintendo partner Rare has lost staff to the land of the PlayStation

Sony vibrates

Sony's analogue PlayStation joypad has launched in Japan, retailing at ¥3,000 (£15).

Surprisingly, as well as offering the obvious advantages that an analogue control method affords, the 'pad has a built-in vibrating mechanism, which works in a similar manner to the N64 Jolting Pack, though the physical effect is much more subtle (chiefly because the action is generated using power from the PlayStation rather than 'AAA' batteries).

The first game to use Sony's new pad was *Bushido Blade* (see E45), followed by *Tobal 2*, reviewed on page 80.







Members of Eighth Wonder worked on *GoldenEye 007* (above) and *Killer Instinct 2*

The Nintendo publicity drive suffered another setback last month when six Rare employees left to form their own studio – and develop for Sony. The team – three programmers, two artists and a game designer – are calling themselves Eighth Wonder, and have already clinched a three-title PlayStation publishing deal. Though not as serious as the desertion of Square or Enix, it's a psychological blow nonetheless and gives the Sony camp a stick with which to beat Nintendo at the E3 show in Atlanta.

Though NOA has already dismissed the news as 'a non-event bordering on the ridiculous', part of the team are known to have been working on the forthcoming *'Dream'* project that Nintendo hopes will steal the show in Atlanta. With so much happening in the Rare camp, it does seem like a bad time for a brain drain. **Edge** spoke to **Oliver Davies** of Eighth Wonder and quizzed him on the new company, and the reasons behind the move:

Edge: Who are Eighth Wonder, and what titles did you work on at Rare?

Oliver Davies: We're composed of three software engineers (Oliver Norton, Steve Patrick and Jeff Stafford), two artists (Christopher Gage and Adrian Smith), and myself, a games designer. We worked on many of the titles that Rare released in the last three years including *Donkey Kong Country*, *DKC2*, *Killer Instinct*, *Killer Instinct 2*, *Donkey Kong Land*, *Ken Griffey's Winning Run* and *GoldenEye 007*. Four members of our team were working on the forthcoming N64 title, code-named *'Dream'*, when we left.

Edge: Why did you leave?

OD: There were a number of reasons. There was a desire amongst all of us to have more creative freedom in the games that we produced. That was the prime motivation for the move.

Edge: Did you feel restricted by the cartridge nature of Nintendo 64 software?

OD: The console itself is a very good piece of hardware that's unfortunately restricted by its choice of storage medium. It's like building a Ferrari that can only take one litre of petrol at a time. Cartridges place limitations on the developer and, more importantly, lead to raised prices for the consumer. Despite the claims that cartridge was chosen because it reduced loading times, I think that all but the most loyal of Nintendo stalwarts recognise that it was a purely commercial decision.

Edge: Apart from the obvious commercial advantages of developing for the PlayStation, what was it that drew you to the system?

OD: It seemed the most versatile of the current consoles. It's well designed and has a lot more to show people than they've seen so far. We've only just started looking at it but we're excited about its potential. Plus, of course, we have been very impressed with Sony's recent track record and its future plans.



Eighth Wonder has already signed a three-title publishing deal with Sony and is confident it can do something new with the PlayStation

Edge: Do you think that the PlayStation's days are numbered, though? Won't it be a bit of a let down after the 64bit power of the N64?

OD: I don't believe the PlayStation's days are numbered. In fact , I'm sure we're yet to see anyone get the best from the hardware. Technically, having looked at it, we're fairly confident we can do a few things that no else has done yet. However, we will be placing the emphasis firmly on gameplay, which I feel has been neglected in favour of aesthetics, and we certainly don't regard the PlayStation as a let down, rather something different. The advantages the PlayStation has over the N64 are in storage and hardware design. There are certain games, such as *Final Fantasy VII*, that will just never see the light of day on the N64 because of the physical limitations of cartridges. Also, we believe the basic architectural layout of the PlayStation is better for us than the N64, because it appears that game programmers rather than system programmers designed the PlayStation.

Edge: What kind of games will you be making, and how will they differ from the titles you worked on at Rare?

OD: We're not placing any limits on the kind of games we wish to produce. We currently have a game in mind that we're working on, but I can't really say anything more at this stage. I think our titles will differ considerably from those developed while at Rare – they'll be more diverse. Whether we have succeeded in our aim will only really become apparent a few games down the line...

Fog begins to **lift** from **64DD project**

The truth about Nintendo's long-awaited storage peripheral emerges



Photo: CTW

Lincoln promised better support. (Pity his own texture-mapping isn't as convincing as the N64's.)

Nintendo has revealed further technical information about the N64's 64DD storage device at a developer's conference in Seattle. The event, held in April, attracted around 200 N64 developers and included seminars on N64 game development as well as presentations by Alias, Multigen and Nichimen Graphics. US N64 chairman Howard Lincoln proceeded to promise that this is the beginning of a new era of support for thirdparty software companies.

As for hardware revelations, it looks as though the 64DD will present developers with considerable power in several key areas. For a start, the unit will read data at around one megabyte per second (equivalent to a 6x CD-ROM drive) and should include a four megabyte RDRAM upgrade – bringing the total up to eight megabytes (around twice that of the 32bit consoles). This will be invaluable for the development of games which include lots of different courses or world levels (ie racing games, RPGs, etc) – these could be stored in RDRAM and loaded off in intervals when required.

As expected, each 64Mb disk also has a definable amount of writeable space (peaking at a ratio of 26Mb writeable to 38Mb readable), so large amounts of game data can be stored or imported from the Internet. Again this is a useful plus for developers, especially in the design of 'creator'-style games which require the player to radically alter the game world and the computer to store the subsequent changes. RPGs and sports games, which require masses of statistics to be saved in memory, will also benefit, plus, the fact that the writeable space can be employed to download new game characters and/or levels (either from the Internet or from later mission disks) should give games a greater lifespan.

Also important is the news that 64DD is a 'burst access' device which means it sends data to the N64 in high speed bursts rather than streaming it like a CD-ROM. The system is rather ineffective for full-motion video or streaming audio data, but this should not present a problem: the N64 is more than capable of producing polygonal rendered intro sequences to compete with the pseudo-Hollywood film efforts witnessed in many PC and 32bit console games.

As for the physical characteristics of the system, 64DD disks are around the size of 3.5" diskettes, but twice as thick. The machine slots into the expansion connector on the base of the console and includes a tamper-proof locking bay drive door which only opens when a legitimate disk is inserted. The hardware also includes a built-in ROM with help files for game developers and a realtime clock.

If all the proposed features make it into the final product, this could well prove to be the most significant new game peripheral of the last decade. Whatever the case, Howard Lincoln is certainly confident in the N64's future: he recently asserted that a second batch of games due to be shown off at E3 would fully demonstrate the chasm between 32bit and 64bit technology. He has also recently been playing down the significance of Eighth Wonder (see page 10), 'Those guys leaving Rare was a non-event bordering on the ridiculous,' he said 'There are always going to be entrepreneurs going out on their own.'

Meanwhile, the videogame war in Britain took a surprising twist on May 1 as Nintendo reduced the price of UK N64s to £150. Although most retailers and gamers have welcomed the £100 reduction with open arms, some consumers who had already paid £250 for an N64 were quick to complain, forcing THE to set up a special ten-day hotline.

As for the reasons behind the move, a Nintendo press release claimed that 'lower production costs as a result of increased manufacturing capabilities coupled with global sales projections of 12million units in 1997/8' enabled the price drop. However, objective industry pundits believe the reduction can only be read as an attempt to compete on equal terms with the PlayStation, which is still dominating Europe. Indeed, if sales had been so healthy, it is highly unlikely Nintendo would have dropped the price by £100 merely two months after the initial release.

Whatever the underlying reasons, the new price point will no doubt make the N64 an attractive proposition to currently game-mad consumers. £150 certainly puts the machine in the same 'impulse buy' bracket as its 32bit rivals and with excellent games on the way, Nintendo's position at the front of the videogame pecking order is well within reach again.

64DD disks (left) are twice as thick as floppy disks and hold 64Mb of information

Amiga bought

After months of speculation, Amiga Technologies has finally been sold to US-based Gateway 2000, best known in the UK for manufacturing PC clones.

Although the final figure has not been disclosed, Gateway, which ended last year with a revenue of just over $5bn and has a net income of over $250 million, is understood to have bought the company with all its assets, including all patents, trademarks and trade names.

Rick Snyder, Gateway's president and chief operating, is keeping quiet about what the future holds. '[This] will strengthen our intellectual property position and invigorate a company that has been a pioneer in multimedia solutions and operating systems technology.'

Petro Tyschtschenko, president of Amiga Technologies, will remain, as head of Gateway's Amiga International.

3DO sold

Samsung has purchased 3DO's hardware systems business for $20 million in cash. The Korean giant will form a new company based in Silicon Valley focusing on multimedia systems and semiconductor products.

The deal follows the $100m licensing of 3DO's M2 technology to Matsushita 18 months ago, and increases 3DO's capital in order to complete Trip Hawkins' vision of moving towards a software company.

While both companies had originally thought of a joint venture with each partner investing $30 million, it was decided a sales transaction was preferable, allowing the companies to concentrate on their individual projects. The deal has been signed but is pending approval from US and Korean governments.

(out there)

REPORTAGE FROM THE PERIPHERY OF THE VIDEOGAMES INDUSTRY

Surreal in Japan

Western videogame adverts are often rather obvious affairs, relying on screenshots and prerendered characters rather than clever imagery to get the message across. In Japan, however, game publishers take a rather more surreal course – even with their highest-profile releases.

A case in point is the recent campaign for *Star Fox 64*. This is one of the most eagerly awaited games of the past three years, and, considering the strength of the visuals, it would have been easy to show a couple of shots and leave it to the reputation of the original to sell the product. But no. The adverts featured Japan's current top pop starlet clutching a joystick while dozens of youths queue expectantly behind her – presumably for a copy of the game. The idea may well have been an attempt to make the title look like a fashionable item, popular with cute pop stars as well as gaming otaku, it could also just have been titillation (Japanese game mags are full of pictures of female pop idols). Whatever the case, it's the use of a strong image, unrelated to the game, rather than a collection of screenshots, that makes the ad stand out.

Weirdness in general is very popular with Japanese game advertisers. When Psygnosis's *Destruction Derby* premiered there, the ad featured a photo of two men in small carts racing each other in the hallway of a house. More recently, Square Soft's ads for *Front Mission Alternative* admittedly showed a few screenshots but placed these under the legend, 'Wargasm'.

Even hardware is susceptible to surreal advertising: a recent PlayStation campaign, for example, featured a selection of characters in various game-related costumes, surrounded by strange paraphernalia. A far cry from 'Do not under estimate the power…', etc.

While British publishers continue to roll out bloody baths, disembowelled teddies and bits of animals wrapped in newspaper, their Japanese counterparts are amusing readers with interesting and innovative ideas. Perhaps there is something to be learned here…





Lara scores with Bono and co

Edge has been watching the interplay between videogames and music develop for over a year now, but was completely unprepared for the latest incidence. Yes, Irish rock giants U2 have commissioned Core Design to produce exclusive Lara Croft footage for their latest world tour. Apparently the group are real fans of *Tomb Raider* and personally asked if she could appear on stage with them.

The £75m 'PopMart' tour, which began in Las Vegas in April and will reach Wembley stadium on August 22, features the all-action starlet cavorting on a huge 7,000-square-foot video screen. At the end of one song, she is even pictured walking into the distance with Bono. Poor girl.

And this is not even Lara's first flirtation with the music industry – Eidos was planning to release a Lara Croft single a few months ago, but the project fell through.

She shouldn't give up hope, though: as a young, beautiful but ultimately two-dimensional woman with little basis in reality, a career as the sixth Spice Girl beckons. Polygon Spice, perhaps…



EDGE SINGLES OUT THE WINNERS AND LOSERS IN THE INTERMINABLE BATTLE FOR VIDEOGAME CRED

(game on)

Seattle's **The Other Side** network gaming arcade houses linked pods equipped with state-of-the-art PCs, headsets, surround sound and a multiplayer *X-Wing vs TIE Fighter*. Currently the most in-your-face videogame experience around.

Your Pentium166 is already looking a bit sad and you're sick of hi-res chug-o-vision. Bung in a **3Dfx card**, boot up *Moto Racer* and you'll never look back. Sega and Intel seem rather impressed with the technology, too.

Konami's PAL version of ***ISS 64*** is a top notch affair – virtually indistinguishable from the NTSC original. Result.

Leeds Crown Court, for taking a tough line on software piracy and sending an offender down for an 18-month stint in chokey.

SIDPLAY, a SID chip emulation package for the PC and Mac (see page 97), shows game music designers just how much more inventive the craft's exponents often were in the '80s.

Forthcoming games beginning with the word **dark**: *Dark Project, Dark Reign, Dark Earth, Dark Colony, Darklight Conflict, Dark Vengeance, Darknet, Dark Sun, Dark Rift*... the list goes on. For God's sake, lighten up.

THE Games' '**Get Into It**' slogan for the N64's press and TV ad campaigns. Somehow, objects of desire lose their allure once you're told to 'get into it'.

US console RPG translation experts Working Designs has decided to launch a videogames label called... **Spaz**. Doh.

NCL obviously doesn't care about its **PAL conversions** and both *Wave Race 64* and *PilotWings 64* suffer from thick, ugly borders and a noticeable drop off in speed. Nul point.

If **Square Soft USA's translation skills** are anything to go by, *Final Fantasy VII*'s launch in the US on September 7 will let encourage US gamers to 'kick some RPG butt'. Oh dear.

Sega sticking its head in the sand while the Internet buzzes about Saturn 2. We know what you're up to. Or do we?

(game over)

Where are they now?

NAME: **ANDREW BRAYBROOK**
FAMOUS GAMES: ***PARADROID, URIDIUM***



No round-up of game history would be complete without reference to Andrew Braybrook. In the mid-'80s to early-'90s he was responsible for a string of C64 and Amiga hits like the hugely innovative *Paradroid*, the inspirational 8bit shoot 'em up *Uridium* and the accurate computer conversions of *Rainbow Islands* – all notable for supremely addictive gameplay and unusual visuals. Yet unlike other programming alumni like Geoff Crammond or Archer McClean, his career has been dogged by poor judgement and unbelievably bad luck.

All looked optimistic back in 1983 when his partnership with fellow programmer Steve Turner began, leading to the formation of Graftgold. However, the team, which still survives today, never achieved the eminence of other crack coders like Argonaut or the Bitmaps. 'At our peak we had 17 employees,' he recalls, 'but to be honest I would probably have earned more money if I'd stuck to programming mainframes for Marconi.'

Now 36, Braybrook is still designing games in Witham, Essex (the current project being a PC/PlayStation tank sim), but recognises that his choice of publishing partners and platforms during the peak years was far from ideal. Telecomsoft, Activision, Mirrorsoft and Renegade all changed hands within months of signing Graftgold, leaving promising releases like *Fire & Ice*, *Uridium II* and *Empire Soccer* hampered by distribution problems or in development limbo. Graftgold's ill-placed commitment to the Amiga 1200 and CD32 certainly did not help, nor did protracted legal wrangles with the team's original publisher, Hewson Consultants.

'There's a whole list of publishers we probably brought down personally,' he jokes, 'but it was still easier in those days. Now so many people are involved in the release of a game that good designs are often wrecked in the process.

'The whole industry is based on advances rather than royalties, which further ties your hands – but finally I'm happy with what we're doing and who we're working with... and it's still better than a real job.'

Graftgold's TG² (working title) is due for release through Perfect Entertainment this Christmas

VIDEOGAMES ON THE EDGE

A new monthly roll call in which Edge reveals the games that have been eating into the office hours

Moto Racer (PC, 3Dfx-accelerated)
D3D racer that runs superbly through a 3Dfx-based card. The design, handling and visuals are exemplary. Delphine has beaten the Japanese at their own game.

Turok: Dinosaur Hunter (N64, NTSC import)
Take some of the most detailed 3D visuals ever seen, add great animation, superb play mechanics, and ingeniously designed levels, and you have a modern classic.

Castlevania (SNES and PlayStation, NTSC import)
PlayStation *Dracula X* is so well crafted (English-text version to be reviewed soon) that **Edge** just had to check out the 16bit original. And it's still utterly wonderful.

Star Fox 64 (N64, NTSC import)
Begins like a blueprint of the original and then it happens. Shigeru Miyamoto tips his hat to Roland Emmerich and recreates 'Independence Day' on the N64. Stunning.

Windjammers (Neo-Geo CD, NTSC import)
Who would have thought an old, rather limited twoplayer frisbee sim could be so wildly addictive and competitive? No wonder **Edge** has been late on sale recently...

BIG IN JAPAN

● THIS MONTH...
● DIY MANGA
● DIY PORN
● ODOROUS ANTICS

EDGE EXPLORES JAPAN'S CYBER SOHO AND DISCOVERS AMATEUR MANGA MATERIAL, AND BIZARRE PRERENDERED SEX GAMES. MEANWHILE, SEGA HAS UNVEILED AN UNUSUAL AND POTENTIALLY MALODOROUS TWIST TO THE PHOTO BOOTH CONCEPT...

Do-it-yourself manga

Not content with just going out and buying comics, Japanese manga fanatics draw and distribute their own efforts, with some even signing up for extra-curricular school lessons or postal courses to learn how. Much of this material (known as koojin manga – koojin meaning 'individual') is based on famous characters from existing comics, anime and videogames, and the stars of *Samurai Spirits* and *Darkstalkers* have proved to especially popular in the past. Recently, however, zombie stories featuring Chris and Jill from *Biohazard* have become more fashionable.

Not surprisingly, works based around female protagonists – or more specifically around female protagonists indulging in group sex – are the most common. Saturn titles *Evangelion* and *Sakura-Taison* have inspired a wealth of koojin manga imitators because of their cute girlie heroes, and it is not uncommon to find comics depicting various Virtua-Fighters in romantic positions with various Street Fighters (although **Edge** suspects the likes of Blanka, Zangief and Geoffrey are yet to appear – especially together).

At the moment the small circulation of these comics has protected koojin authors from copyright problems. Authors often print just a few hundred copies, selling them to friends or specialist shops (who then sell them on for around ¥400-¥3,000). This is far from a small-scale and anonymous activity however: authors of the most popular works have often gone on to become professional manga artists.

Do-it-yourself pornography

For a number of years, Akihabara shops have sold discs full of sexy manga art, but now, in a similar phenomenon to koojin manga, amateur artists are compiling and selling their own saucy discs. These dilettante efforts retail for around ¥1,000-¥3,500 on formats such as the PC, Mac, FM Towns, etc, and usually come in the form of straightforward galleries. Some, however, have added a simple game element – often the player has to remove tiles to reveal a picture of a semi-clad girl beneath, other times questions must be answered to strip the pixellated babe. The artists responsible are getting more proficient, though, and are now producing crude beat 'em ups starring famous manga characters.

Sex games in 3D

Staying with the sexy computer images theme, until last year there was little discernable difference between professionally produced pornographic products and their cruder amateur counterparts: despite being produced on CD-ROM rather than floppy disk, they relied heavily on 2D images and revolved around simplistic games which required very little animation. Now, however, a new era of computer sex is emerging featuring 3D polygonal characters which maintain the standard manga look – ie colourful, cute, young, petite – but which now, of course, 'move about' in a 3D environment.

Although these CD-ROMs are rather limited at present (visuals are basic and not particularly detailed, and every sex scene is prerendered), this is certainly a glimpse at the future of computer pornography. **Edge** has seen one such CD-ROM and was surprised, not by the explicit and violent nature of the polygonal eroticism, but by a bizarre scene involving a cannon and a pair of disembodied legs.

Sega smells

Last year saw the release in Japan of 'picture sticker' machines. Working like standard photo booths, these units add an important frisson by allowing the user to add text to the image and then print it out as a sticker. Amazingly, the machines have proved enormously successful (even now potential customers often have to queue to use them) and novelty coin-ops subsequently became big business, especially among the female sector.

Determined to capitalise on the phenomena, Sega, which already produces its own 'photo sticker' machine, has recently unveiled a new *Aroma Club* coin-op – aimed at women office workers and high school students. Here, users put coins in the slot and then tell the machine about their personality and current mood by answering questions which appear on the unit's screen. After a short wait, the machine dispenses a bottle of perfume chosen to reflect the player's responses.

Although players who tell *Aroma Club* that they're feeling rosy today are probably in for a pleasant spray of eau de toilette, heaven knows what'll happen if you tell it you're feeling shitty...







Amateur manga artists saturate their works with game imagery – *Biohazard* characters are a popular choice







Polygonal porn: 3D imagery is becoming increasingly popular, with some particularly depraved souls progressing from prerendered manga girl action to fully 'interactive' sex-themed games





Many home-grown 'manga babe' games, such as this one (above), featuring Sailor Moon characters, are simple 'Pairs'-like experiences. What *Aroma Club* players end up with (right)





Back | Forward | Home | Reload | Images | Open | Print | Find | Stop





(netview)

Location: http://home.netscape.com/

What's New? | What's Cool? | Handbook | Net Search | Net Directory | Software

EDGE TRAWLS THE INTERNET FOR THE LATEST DEVELOPMENTS IN ONLINE GAMING

Twilight **Lands**



Ice Online's *Twilight Lands* presents a first-person view of a detailed 3D world

E-On, which bills itself as 'the leading online entertainment channel' for the Internet, may just have found the killer app it's been looking for. Bought in from Ice Online, whose previous efforts include the multiplayer *Tank Warrior*, *Twilight Lands* is a 3D, first-person RPG in the tradition of EA's 16bit classic, *The Bard's Tale*, only with hundreds of simultaneous users.

The game features a more advanced 3D engine than Studio 3DO's *Meridian 59*, with rooms on top of rooms, and six degrees of movement, allowing characters to look up and down and jump. At the moment, character classes are limited to the standard warrior/cleric/sorceror beloved of pencil-and-paper roleplayers, and there are presently only 100 'rooms' to discover, though Ice promises forests, mountains and deserts to follow.

Unlike many online games, however, *Twilight* makes good use of the Net's unique attributes, allowing groups to set up clans, own buildings, chat, and even employ one another as mercenaries or assassins.

The *Twilight Worlds* software is free to Entertainment Online members, and membership costs just £5.99 a month. For more details both on the game and subscribing to the service, visit http://www.e-on.com

Modem confirmed for **64DD**

Hiroshi Yamauchi has at last confirmed that the N64's 64DD device will be modem compatible. He recently told Asia Week: '[64DD] will allow users to replace the original characters in games with new ones via modem and later by satellite communication. This is why we chose to use cartridges instead of CD-ROM which can't be written over.'

This writeability would make the 64DD superior to Saturn's Netlink in terms of web browsing. Sega's device has no cache so each time a page is referred to, it has to be reloaded into RAM. The 64DD could cache pages onto its writable areas making it quicker to access previously viewed sites. However, while it is confirmed that 64DD will work with a modem, it is unclear whether the modem will be included with the 64DD or released later. Question marks also hang over the speed of the modem (Netlink is 28.8k – anything less would surely be unwise), and the nature of online gaming the system will support (peer-to-peer or true Internet).

The 64DD storage device is due out in Japan by Christmas. Nintendo can be found at www.nintendo.com



***Zelda 64* could be one of the first games to take advantage of 64DD's modem connection**

DirectPlay away

Previously, to make a title compatible with modem, serial, Local Area Network and Internet play, programmers had to write different code to address each of the communication protocols involved (TCP/IP, IPX, etc). As part of its new DirectX 5.0 SDK, however, Microsoft has announced a solution designed to help developers create online games without having to go through this timewasting procedure.

DirectPlay forms a bridge between the developer and the various types of networks, effectively making the idiosyncrasies of each different communications link transparent. In this way, developers don't have to worry about addressing the individual nuances of those protocols (which can take weeks of coding) – they just write to DirectPlay and it does the rest. Additionally, DirectPlay has an open service provider architecture allowing custom protocols to be plugged in under directplay, like ATM, ADSL, etc. The new API also simplifies online gaming sites' lobby services (ie where players meet to play games, see high scores, join tournaments, etc), so things are made easier for the user at home as well as the developer. Microsoft is keen to point out, however, that DirectPlay cannot solve the problems of latency and bandwidth inherent on the various networks – 'At best it can supply accurate performance characteristics to the application and let it decide the best strategy for messaging,' says program manager **Ajay Jindal**.

According to Microsoft, DirectPlay, currently available in Beta form, has already been adopted by a number of developers including Sega (*Sega Rally*), EA (*NBA Live '97*) and Activision (*A-10 Cuba*).

Plus, several online gaming providers – including Mpath, America Online's ImagiNation Network and the Microsoft Internet Gaming Zone, Inc – are supporting the intiative.

More information about the DirectX 5.0 software development kit, including DirectPlay, can be found at Microsoft's own website at www.microsoft.com





***Monster Truck Madness* is one of Microsoft's own titles currently being used to test DirectX 5.0 and components like DirectPlay**

nuMedia

in association with



No 14

A meeting point for media capitalising on the digital entertainment revolution

As the stuff of science fiction becomes reality, Maris brings astronomical dreams to the PC with a stunning VR exploration of a space station yet to be built. This month's electronic devices are true celebrations of the new Space Age, with a pocket-sized device you can use for e-mail and databases on the move. Meanwhile, digital-audio revolutionaries like Skint, Distance and Platipus offer discerning listeners the most modern soundtracks around.

CD-ROM 

Space Station Simulator

Space nut PC owners may well have come across Maris before, perhaps via its mind-blowing (and mind-blowingly difficult to get to grips with) virtual reality astronomy program *Redshift 2*. That title let users travel through time and explore the night sky from different parts of the world, hitch rides on the comet Hale Bopp as it passed the Earth and so on, and it was mathematically rigorous enough to satisfy even professional astronomers.

Space Station Simulator, the company's latest CD-ROM, is just as impressive in technical terms, and its subject matter has even wider appeal: it covers the International Space Station, a complex dedicated purely to research, which hasn't even been built yet.

Don't fret, though – this is not some crappy pictures-and-text educational multimedia effort. *SSS* lets you assemble your own space station (using the various multi-national components of the ISS) in Lego-like fashion, then float gracefully through it. The finished representation is so realistic that it is being used to familiarise the astronauts who will populate the real thing.

It also lets you indulge in a spot of space-walking, connect to the Internet for an update on the real (as opposed to virtual) project's progress, explore the projected launch sequence of its various components, and glean all sorts of information about what life for its inhabitants will be like suspended in space. It's a brilliant guide to a complex and specialised subject.

Ultimately, *Space Station Simulator*'s appeal may wane before that of, say, *X-Wing vs Tie Fighter*, but it makes most of the other multimedia CD-ROMs look like so much orbiting space junk. And it's one of the few items of software in existence which actually makes use of an MMX Pentium PC. Although *SSS* will run on a non-MMX PC, it does rather chug along, which rather hampers the experience.

Space Station Simulator is a great way of exercising those childhood dreams about becoming an astronaut, without having to brave space sickness or becoming super-fit, joining the US airforce and hoping for the best.

• Published by Maris	• PC
• Developed in-house	• £40 (available now)







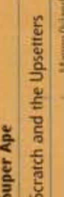


Music 

Brassic beats part two
Skint
Skint records



Skint Records has more than come up with the goods in this, the second part of its 'Brassic Beats' compilation. With some of the label's finest artists behind the wheel, every track on this album exhudes quality and originality in its own right. From the fantastic big bass beats of Fatboy Slim and Hardknox ('Michael Jackson' and 'Coz I Can') to the ingeniously put together scratch and hip-hop of Cut la Roc & Bassbin Twins ('Post Punk Progression & 2 Turn tables' and 'a crate of skint'). This album is a quality fix for anyone with classic breakbeat or hip-hop addiction. Buy it.





Ask any proponent of electronic music about Lee Perry and they'll tell you he's a quintessential influence. Along with many Black Ark cohorts, he was making brilliant ambient dub while the likes of The Orb and Underworld were following their mothers around Sainsbury's. To acknowledge this respect, Island has re-released a few classic Perry-produced albums including this one from 1976. It is testament to Perry's creativity that the big beats, rumbling bass sounds and distorted rhythmns which fill 'Super Ape' were created without a modern sampler in sight. Inspirational.

Gadgets



- G-Whale watches
- Casio
- £50-£150
- Available now



G-Shock/G-Whale

Casio will introduce only 1,000 of these Whale versions of the chunky and stylish G-Shock and Baby-G watches to the UK market, but they will be well worth tracking down.

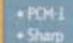
When the watches' backlights are turned on, the G-Shock version displays an imprint of a whale breaking out of water, while the Baby-G model shows one of six random whale animations.

Both offer the facility to store personal details, including your name, address, phone number and even blood type.

The watches were commissioned to celebrate the 6th International Dolphin and Whale Conference, and a portion of the sales price will be donated to the conference.

These are watches are for the conscience, then, as well as the wrist.

G-Whale watches Casio, tel: 0181 4509131



- PCM-1
- Sharp
- Price: TBA
- Available July

Mobile Communicator

Nokia's 9000 (a cross between a handheld PC and a mobile phone) never quite lived up to expectations for two reasons: it retailed at a cool £1,500, and its excessive bulk rendered it unattractive as a mobile.

Although its price has not been announced, Sharp's PMC-1 will at least address the 9000's other problem. It's a PDA/mobile which is actually the shape of a mobile, but features a touch-sensitive screen rather than the usual keypad for dialling.

Although it can't be used to surf the Web (an ideal which has proved impractical with such devices), users can send and receive e-mails, create tables and text files, and manage a database of appointments and addresses. Just what you need – no more, no less. Destined to become a dead trendy item of gadgetry.

PCM-1, Sharp, tel: 0345 125387

CD-ROM



World Book Multimedia: UK International Edition

Very little has changed since the very first interactive encyclopedias began to pop up five years ago, as a response to the huge storage capacity of CD-ROM. The number of entries, animations, pictures and sound clips has generally increased, but often there is little to distinguish between different products. Perhaps this is why IBM has put so much effort into finding new angles to enliven the British version of its best-selling 1997 *World Book* encyclopedia.

After a couple of hours' study, it is clear *World Book* can be split in two: things it does brilliantly, and slight disappointments. In the former category come the detailed, authoritative entries, the number of pictures and illustrations (8,000, plus 750 maps, 134 videos and 44 animations) and an Internet link-up which provides access to around 1,200 websites.

World Book is geared very much toward students and does everything it can to accommodate them. The information is designed specifically with the National Curriculum in mind, for example, and adds 'highlight' and 'sticky note' options so pupils can customise info for future reference. 'Time Frame' is another winner, allowing the user to enter a date and receive all the info relevant to it, making the cause and effect of historical events easier to understand. For those who are just curious, there's even a 'Just looking' screen which displays a random collection of articles and pictures from which to choose. The whole thing is beautifully presented and intuitive to use.

As for disappointments, the inclusion of virtual reality sections which allow the player to explore places like Stonehenge and the Eiffel Tower sounds intriguing, until you realise they are only a few photos joined together (perhaps a fully explorable, texture-mapped polygon model would have been too much to ask). There are no interactive games, as there are in Microsoft's *Encarta*, which would have added another element to the package.

Overall, *World Book UK* provides a stylish reference product designed specifically for British users. It wouldn't be completely accurate to say *World Book* makes learning fun, but it certainly makes many steps in the right direction.





- Published by World Book
- Developed by IBM
- PC
- £50 (available now)

Music



Highway and Landscape

various

Distance

Under the unassuming surface of this double-CD compilation is a chillout album of real class. CD1 (Highway) kicks off with Sun Electric's beautifully haunting 'Quaila' before progressing through a combination of classic mellow trance such as Rabbit in the Moon's 'Out of Body Experience' and SLAM's 'Emotive', and onto newer quality excusions such as 'Ultra Violet' from International People's Gang. With a second CD (Landscapes) offering an even mellower, but still cheese-free, vibe, it's the perfect aural accompaniment to ease in those long Sunday mornings.

Turtle Crossing

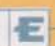
Terra Firma

Platipus Records



As one of the world's leading trance labels, Platipus rarely disappoints. Terra Ferma (essentially respected trance duo Union Jack minus label boss Simon Berry) takes a dancefloor-friendly approach in contast to the 'avin' it, tripped-out territory that most artists in this scene occupy. As such, 'Turtle Crossing' meanders between never-ending Sasha-style epics ('Lunar Sunrise') and genuine quality club trancers ('Floating'). Apart from an occasional bout of Robert Miles-style fluffiness, this is progressive and, in places, infectious. Worth checking out.

Gadgets



• C32WD2TN • £1,500
• Hitachi • Available August

Hitachi Widescreen TV

Playing Mega Drive games on a 14-inch portable was fine – the resolution wasn't really up to being blown all over 28 inches of screen. That isn't the case with today's consoles, so why not invest in the best if you're to invest in a TV? Hitachi's new range of widescreens includes this NTSC-compatible 32-inch monster with Dolby Pro Logic decoding, output for five channels plus an output for an external AV amp.

The set features Hitachi's 3DS surround system which is supposed to replicate a full AV set-up's five-speaker sound with two speakers. Surprisingly, it gives a distinct feeling that sound is coming from behind you.

And when DVD gets its UK launch later this year, you'll be ready to view your favourite movies on widescreen.

C32WD2TN, Hitachi, tel [illegible]

• Tamagotchi • £11
• Bandai • Available June



Virtual Pet

After so famously taking Japan by storm, the Tamagotchi ('loveable egg', literally translated) phenomenon is poised to hit western shores.

For those who've somehow missed the blanket media coverage of the fad in recent months, some explanation of Bandai's novel toy will be necessary: when you buy a Tamagotchi, the block LCD display shows a small egg. An hour after you hit the button on the back it 'hatches' and turns into a small blob bouncing around the screen. It's now your responsibility to feed, nurture and clean up after your 'pet' so it grows into a strong, healthy creature. About a month later, the thing croaks, and you start all over again.

Mad, but cheaper than a cat...

Tamagotchi, [illegible]

Books

Digital Literacy

• Paul Gilster

• John Wiley Publishing

• £17

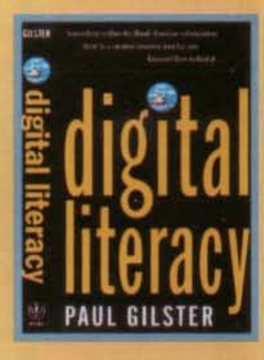
• ISBN 0-471-16520-4

Best known for his bestseller 'The Internet Navigator', Paul Glister here presents a profoundly confusing and disappointing book.

The title suggests a look at the new forms of literacy which we will have to develop as the Web becomes a more important part of our lives. What the author actually does, however, is combine long ramblings about many Internet-related subjects with personal anecdotes, often losing sight of the central theme of the work – the importance of understanding the mass of data which bombards the Web user.

Of course, it is very fashionable right now to write a personal account of online experiences and how they have shaped the author's life away from the keyboard, but Glister just doesn't carry this off as effectively as, say, John Seabrook in 'Deeper' (**E**45).

People do need advice on how to use search engines and make sense out of the information that they present, but 'Digital Literacy' isn't that book. The irony of this meditation on Web confusion is that Gilster wandered away from the initial idea for the book and got well and truly lost himself.



Halcyon Days

• Edited by James Hague

• Dadgum Games

• $20

• http://www.dadgum.com

If **Edge**'s two-part feature on classic videogame emulation (concluding on page 58) has whetted your appetite for nostalgia, then 'Halcyon Days', a collection of interviews with some of the legends of the gaming world, is certainly worth a look.

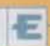
Here, the likes of Jeff Minter present their own account of the games they have worked on, and provide a snapshot of what the industry was like before the PlayStation was even a twinkle in Sony's eye.

Many of the interviewees have gone on to gain fame in the modern gaming industry, of course, but their early careers offer a fascinating look at videogaming when it was a new frontier. These individuals laid the foundations for the programmers of today, leaving a legacy of work that is unfortunately often forgotten as technology has changed and evolved.

The interviews are only available in HTML format on floppy disk, so you will need a Web browser to view the PC and Mac-compatible files. If Dadgum ever publishes the interviews in book form, though, a copy deserves to find its way onto every gamer's bookshelf.



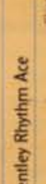
Music



Viva Hacienda
Various
Deconstruction

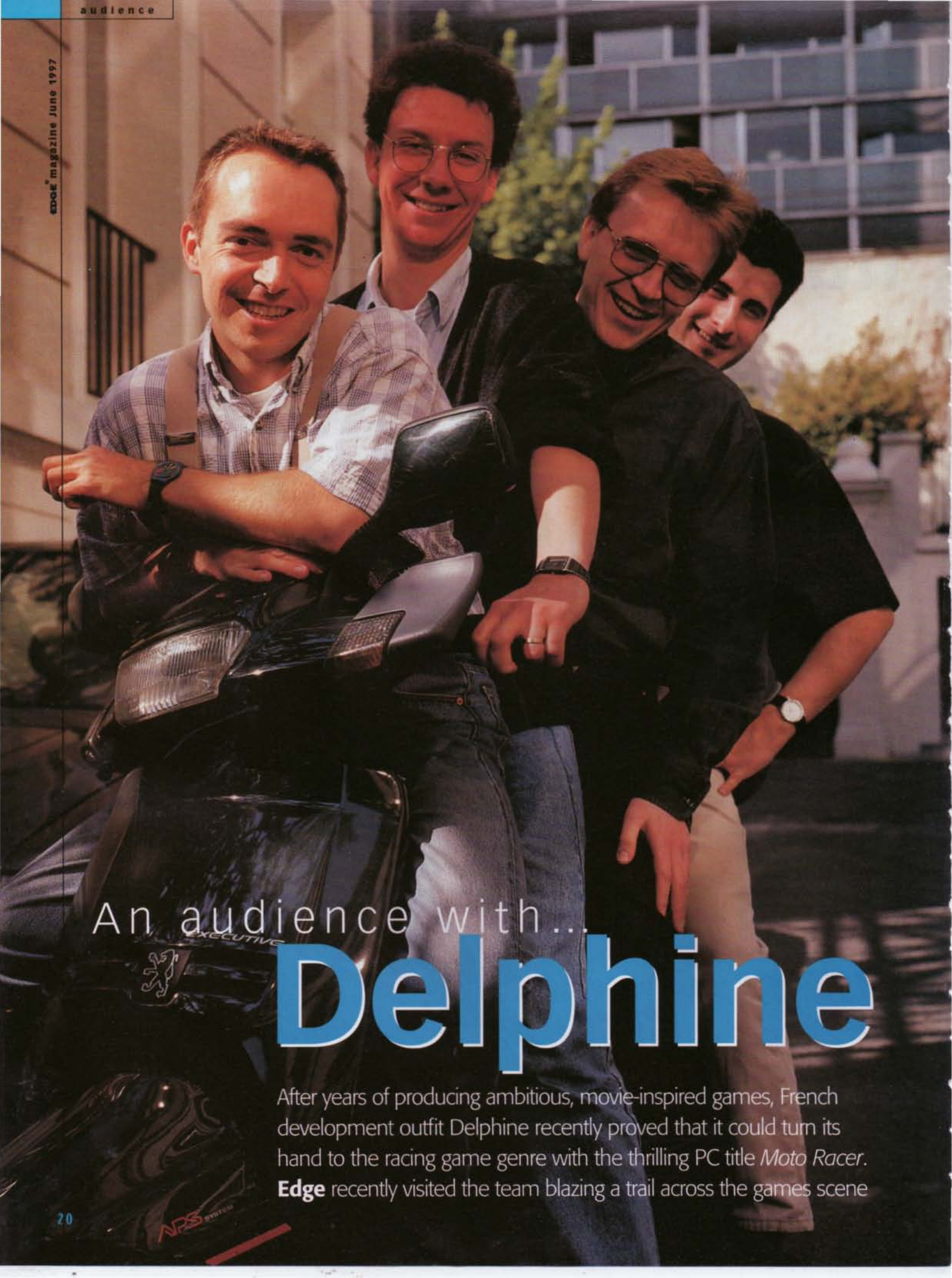


It's hard to believe, but that beacon of Northern nightlife, the Hacienda, has been going for 15 years now – which is all the excuse Deconstruction needed to come up with this huge collection, a genre-bridging trip through such dancefloor delights as Phuture's legendary 'Slam', Alison Limerick's 'Where Love Lives' and L'il Louis' 'French Kiss'. It's yet another homage to the classics, then, but one that's rescued by the club's adventurousness. Young MC, New Order and Deee-Lite squeeze in alongside regular techno and house legends. No Happy Mondays, but otherwise ideal.





Bentley Rhythm Ace's debut album starts off fairly low key with a melodic and relaxed feel, but this is soon turned on its head with the storming near-classic 'Why Is a Frog Too...?'. This is followed by some experimental beats and rhythms in the aptly named titles 'Mind That Gap' and 'Run on the Spot'. 'Bentley's Gonna Sort You Out!' is the warm, mellow number you'll play repeatedly this summer, while tracks nine and 11 are as groundbreaking as their respective titles are lengthy and descriptive. A wise buy for those who crave a new cool.



An audience with... Delphine

After years of producing ambitious, movie-inspired games, French development outfit Delphine recently proved that it could turn its hand to the racing game genre with the thrilling PC title *Moto Racer*. **Edge** recently visited the team blazing a trail across the games scene

Situated in the heart of Paris, Delphine Software International has consistently delivered quality titles earning them recognition as one of France's premier developers.

Games such as *Cruise for a Corpse*, *Flashback* and *Fade to Black* all excelled in terms of technology and visual accomplishment, revolutionising the graphic adventure genre. However, with the release of *Moto Racer*, Delphine has entered new territory. For a company firmly established in action adventure games, an arcade-style motorbike racer represents a totally different avenue to pursue. Odder still is the fact that the idea for *Moto Racer* should emerge out of *Dragon Blade*, a sword-wielding action RPG game. **Edge** braved the Channel Tunnel to chat to Delphine's key members – project manager **Philippe Chastel**, project coordinator and technical producer **Thierry Gaerthner**, and art directors **Thierry Perreau** and **Denis Mercier** – responsible for all of the company's major titles, about the French approach, Conrad, and their future projects, *Dragon Blade* and *Moto Racer 2*.



The 23-strong Delphine set-up. 'We're a small team, with limited means,' says Gaerthner, 'but we've always agreed on producing less games and to try and make those as good as possible'

Edge: Given Delphine's rich heritage of adventure games, how on earth did *Moto Racer* ever happen?

Philippe Chastel: After *Fade to Black* we started researching *Dragon Blade* [a 3D adventure game]. It's an ambitious and important project and when it started to fall behind schedule the opportunity for an intermittent game arose from fooling around with its collision detection program. This was how *Moto Racer* got started. The original ideas we had weren't working for a racing game so at the end of last year we decided to dissolve *Moto Racer* into what would be more of an arcade game which would give better results, particularly in terms of speed as 3D cards were appearing on the scene. This was new to us and the *Windows 95* version was also a first as was the idea of developing it in C++. As a result, we were forced to stop work on *Dragon Blade* for a few months in order to get the whole team working on *Moto Racer* to get it out on time.

Edge: Would you agree that one of your earliest games, *Another World*, really started the movie-style adventure genre?

TP: Well, *Cruise for a Corpse* already had the basics of a cinematic approach that *Another World* took further.

PC: Yes, but it wasn't made by the same people. *Another World* was developed by Eric Chahi independently from Delphine so one can't say that the cinematic genre started with *Another World* or *Cruise for a Corpse*. The research that went into both games resulted from finding ways of reducing the size of adventure games because these were getting too big for floppy discs that were used at the time. This is when we started to work with polygons – in *Cruise for a Corpse* the main character was made out of polygons in 2D as was the case with *Another World*, which also had polygon backgrounds.

Edge: *Flashback* continued the movie genre and the Conrad character became fairly well known. How did he come about?

Thierry Perreau: He was originally called Michael, not Conrad. I think it was the attraction of doing a science fiction game that persuaded Paul [Cuisset] to do it.

TG: Wasn't it supposed to be based on the movie, 'The Godfather'?

TP: That's right, it was. The original plot was a futuristic adaptation of 'The Godfather'.

DM: We wanted to incorporate the Godfather character into a space adventure and eventually it became a space adventure without the Godfather at all. In fact, I don't know if the idea of transposing the Mafia elements into a galactic system with other smugglers appealed to the studio. This was why Conrad was originally called Michael, after Michael Corleone.

Edge: What about the character animation in *Flashback*?

PC: We'd thought of using rotoscoping as in cartoons and someone had a camera with which we filmed one of us walking across the room just as an experiment. We used *Deluxe Paint* and within a week we got pretty ▶

'We've always preferred quality over quantity. Most people at Delphine are perfectionists and will work until they are satisfied with the results'



Delphine's stunning D3D champion, *Moto Racer*

convincing results. At the time, rotoscoping was very promising, then of course motion capture technology arrived which we could afford due to the success of *Flashback*, allowing us to do *Fade to Black*.

Edge: How do you view the game now?

TP: I still play it now and again. Maybe it could have done with a bit more playability. It's also a bit complicated; some of the moves are a bit complex to execute, but otherwise I think it still holds its own – in visual terms as well as having an interesting plot.

DM: There are certain games which age very well and which work well regardless of the technical capabilities of the machine.

TP: *Mario*, for example, will never age. It's the sort of game that one always enjoys coming back to now and again and I think this is the case with *Flashback*.

Edge: You mentioned playability – what else would you have done differently?

PC: I think what *Flashback* was really lacking was a third dimension, as well as scrolling, which was criticised at the time. We'd really concentrated on the animation, which we'd perfected, and the amount of memory it took up meant there was not much room left for the backgrounds. It was also a technical problem. However, using 2D meant there were no orientation problems. When experimenting with 3D, one of our biggest problems was how to allow a player to adapt to a 3D environment as easily as 2D. So it might have been difficult to implement 3D at the time. But *Flashback* and *Fade to Black* are games which rely heavily on the strength of their design and plot – they're not simple





contemplated doing *Flashback 2* in 2D. At first by adopting the same side view as in the original game, then a top-down view as in *Gauntlet*, and also some pseudo-3D sections, before actually deciding to go for full 3D.

Edge: Graphical finesse is something often associated with French game development. Do you see Delphine as quintessentially 'French' in its style and approach?

TC: We don't feel any different in the way we develop our games from the Americans or other European developers. Of course, other countries perceive our games as very particular in style but we are not aware of this as it's difficult to see it objectively.

PC: Actually, it's very paradoxical because we live in a culture with all the latest Hollywood blockbusters, and everything that deals with sci-fi – we love it. You won't see any of our games based on Jean de Florette, for example. But maybe because we're French, seen from the outside our games carry distinguishable traits. However, this is not something we go out of our way to achieve – there's no intention of prejudice.

TG: We just want to make games.

DM: However, it's true that when you look at French game production in general, there are occasions when more emphasis is placed on graphics rather than playability.

Edge: What do you think are the major differences between French, European, Japanese and American games?

TP: In terms of playability the Japanese are gods, they manage to do amazing things. *Super Mario 64*, for example, is above everything else.

> 'Experimenting with 3D, one of our biggest problems was how to allow a player to adapt to a 3D environment as easily as they would a 2D one'



Thierry Gaerthner

arcade games that one forgets within five minutes of having played them. They have something that holds the player and makes them want to see what's next.

Edge: How difficult was the move to 3D with *Fade to Black*? What are the specific game design problems associated with such a move?

PC: Well, just before *Fade to Black*, *Doom* came out, but we were so used to seeing a character that the first-person perspective bothered us. We liked to see the character's reactions – the movement involved when he pulls his gun out or looks left or right, for example. Maybe this is what makes our games more difficult to master in terms of playability. This is actually what we have been criticised for in the past – that we're trying to get too close to films, we use too many close-ups. As a result, the adaptation time required for the game is longer than that for *Doom*. Also, the camera gave us many problems. We didn't want it to go into the walls, whereas in some games, developers don't seem worried about this. But it's something that really annoyed us, so we spent a lot of time dealing with it as well as the character animation. Those were our main problems.

TG: Also, before switching to 3D, we'd

PC: That's true of all Nintendo games.

TP: Nintendo are usually very strong on playability and they manage to combine it with a strong graphical environment – at least in the case of *Mario*. In the US, things are different. They have good ideas but these are sometimes let down by the production side. Generally, with European stuff one feels there is something extra, an attention to detail, but it's true that playability is sometimes lacking, something the Japanese have complete mastery over.

DM: With *Donkey Kong Country*, for example, Rare created a game that is totally universal. Yes, there is Nintendo behind it, but as you play it you forget the publisher – the game is playable, with many qualities. I think a great game goes beyond questions of nationality; the player concentrates on the game, enjoys it, and is engrossed in the plot. I don't think we can generalise – there are several developers that are able to produce masterpieces.

Edge: The 'cinematique' techniques employed in your products help with the plot formation of the games. How important is it to give titles that movie feel?

TP: When you want to tell a story, you must have cinematic scenes, these are important.

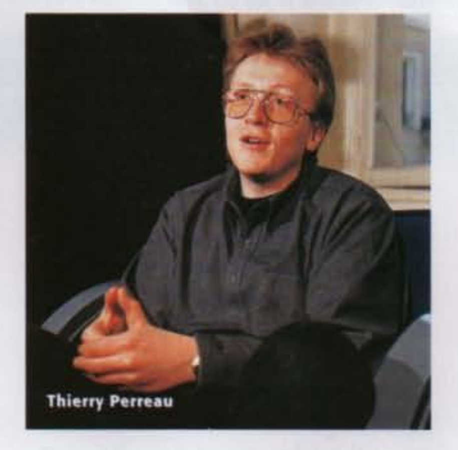
What we have in *Fade to Black* are prerendered scenes. The next step is to have these scenes happening in realtime. This is interesting because prerendered scenes are totally visually different and therefore extract the player from the game. It would be interesting to keep the same visual aspect all the way through the game, incorporating these scenes as an integral part of the game.
Edge: Surely developers must be getting close, graphically, to creating the cinematic sequences in realtime?
TG: Yes, in fact it's already done in some arcade games or something like *Final Fantasy VII* on the PlayStation which has scenes that are predefined but rendered in realtime so that the flow of the game is not interrupted.
TP: In *Mario 64*, for example, there are no cinematic sequences but every now and then the action stops and *Mario* indulges in conversation and it's fluid – there's no break up of the game, it forms part of it.
DM: The difficulty comes from the fact that it must remain a videogame. The cinematic

quantity. I think most of the people at Delphine are perfectionists and will work until they are satisfied with the results. This of course takes longer than just leaving a game at a merely satisfactory level. This is why our production rate is lower than other publishers, but we're also a small team with limited means. Nevertheless, we've always agreed on producing less games and to try and make those as good as possible.
PC: Having said that, we still have to make a living and we're not in a position where we can do something like *Flashback* every couple of years that would allow us to continue with other developments comfortably. This is why we're managing two developments simultaneously in order to reduce the financial risk. That does not mean that the development time is shorter. The games will take just as long as previous efforts, but at the end of the day there will be two products on the shelves. In any case, you can't ask us to produce a game simply for money-making reasons because we only develop a game if



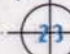
'*Moto Racer* happened by accident. We had a simple model with cubes moving over a landscape and we thought they looked like motorbikes'

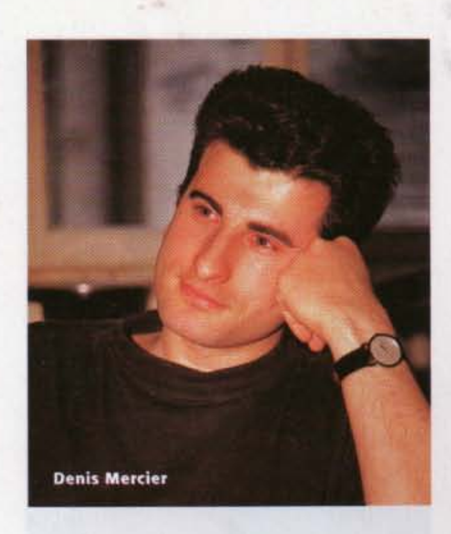
aspect must be assimilated into the game without disrupting the gameplay so that the whole thing remains interactive. It must add to the game rather than take it over.
Edge: Do you think that the odd qualities of your games limit their commercial success?
TG: It's possible. We try to have an international approach when it comes to all our games. We know that in certain countries our games have been criticised for being too complex, which was the case with the PC version of *Fade to Black*. This is one of the reasons why we simplified the control system for the PlayStation version. We are aware of past criticism and try to create a product that will serve the biggest possible audience. This is what we tried to do with *Moto Racer* – to have an arcade game that would be very easy to play as well as having extras such as the ability to pull wheelies, but the concept remained as simple as possible.
PC: I don't think we have a 'Delphine look'. We didn't set out to make a game that would be orientated towards a Japanese, American or European market. There was no market research carried out to make sure the game would work everywhere. We just liked the idea and so went ahead and did it. Maybe this is what constitutes the 'French touch' that we mentioned earlier, but we do it because we like it – we're not trying to copy something. This has probably been Delphine's strength in the past but with *Moto Racer* we've learned that there are other things as well as the importance of the user interface, particularly for an arcade game. We're now placing more emphasis on playability so that the gameplay is easily assimilated by the player.
Edge: Do you believe that doing fewer titles is the key to success?
TG: We've always preferred quality over


Thierry Perreau

we like its concept.
Edge: Is this Delphine's underlying philosophy?
PC: Yes, but of course this causes problems with the commercial side of the company. They'll want the game out as quickly as possible and we'll only release it when we're happy with it. However, they're aware of our passion for games and if we haven't got a particular level finished it's because we don't think it's ready yet and they trust our judgement – there's no real pressure from them to get the game out.
Edge: You mentioned Hollywood movie blockbusters and science fiction. What are your other influences?
PC: At the time of *Flashback* we were really into [French-born comic-book artist] Moebius.
TP: We really liked the stuff he was doing and in fact we got him to do the artwork for the US *Fade to Black* PC box.
Edge: Where did the inspiration for *Moto Racer* come from – *Manx TT*, perhaps?
TG: Not at all. It was very much something

that happened by accident. It was while we were working on the early collision detection tools for *Dragon Blade* and Microsoft's software, because the game relies totally on DirectX. Paul Cuisset had started work on the collision detection system and was also playing around with it to see how the game would work in a network set up. He had a simple model with cubes moving over an undulating landscape. We thought they looked like motorbikes and that was when we first had the idea to base a game around that. After many redesigns, we arrived at the version we have today. The initial concept was totally different from any other bike game so there was no inspiration or influence from another company's work. As we went along it eventually changed into something more classical in concept simply because our initial ideas didn't really work for a race game.
PC: It is totally classical in terms of the game itself but it is totally original in its conception. This is where we can see Delphine evolving in the right direction. We have kept our originality in design and animation and we've learned about the user interface and the classic elements of a racing game. It seems to work well and we hope it will benefit the user.
Edge: The replays in particular are very much like those seen in Namco and Sega racing games, though, aren't they?
TG: Of course, we are all fans of arcade racers such as *Rage Racer* from Namco and the titles from Sega. We've all played them passionately, but we were not inspired by them for the replays. Once you place cameras along a circuit and film a vehicle travelling along it you end up with very similar results.
DM: In fact, the first game to do this was *Indy 500* on the PC which allowed you to replay races from several angles, even before that it ▶




Denis Mercier

was done in the arcades with *Daytona* or *Virtua Racing*.

PC: It was always our intention to get good camera views. This follows on from *Fade to Black* where we worked hard to get the camera right, which of course helped us when it came to *Moto Racer*. For *Moto Racer 2* there are even more cameras.

The thing that's great about 3D is that you can put cameras where you wouldn't be able to if you were doing a film. The potential is there to make games more powerful than movies. It's a new thing that I think game developers are beginning to realise and master. I'm convinced we'll get to the stage where players will be appointed to be in charge of the camera placement as things become more complex.

Edge: What is your favourite arcade racer?

TG: *Rave Racer*, in a hydraulic cabinet, linked to other machines. In Paris we only have a fourplayer version but I know that in London there is an eightplayer version. In link mode the competition is relentless – you never know who is going to win until the very end because the situation changes constantly. At one stage we even had a scoring system like in Formula One, but this created too much tension, particularly for those who were bad losers, so we had to stop it.

TP: Konami's *Racing Jam* looks fantastic, I can't wait to play it. *GTi Club* is also very, very good – you really feel as though you're in a real town.

Edge: How do you see the PlayStation version of *Moto Racer* turning out?

TG: It won't have a link mode. Instead we've included a vertical or horizontal split-screen option for two players. We'll also concentrate on lighting effects that we didn't have for the PC version. There will also be two extra tracks, and the whole front-end has been totally reworked.

Edge: How will *Moto Racer 2* differ from the first game?

PC: It will be more realistic in terms of graphics. There is only one way to really do this so we're going out on location to get realistic light readings so as to integrate them into the game. The lighting, shadows and use of colour will all be more ambitious.

TG: In *Moto Racer* we worked on *Windows 95* and with 3D cards for the first time. As a result, we didn't use this combination to its full potential. So for *Moto Racer 2* we have the time to extract all we can and add all the effects that 3D cards allow to end up with a visually more realistic game as well as a technical improvement because we will be able to fully exploit the technology.

PC: Furthermore, we're also working on character animation such as getting up, running back to the bike and lifting it up after falling.

Edge: Will it use the same lap concept or are you considering stage-based gameplay?

PC: We thought about this and decided we don't want to change direction. We quite like the concept of circuits and championships so I think we'll stick with closed tracks. But we might have the road splitting, offering the player short cuts which will be harder to negotiate but worth the effort if done properly.

Edge: The 3D cards obviously offer new possibilities. Which do you think is the best?

TG: It's difficult to say because we work with several of the manufacturers so we might upset one by choosing one of their competitors. We think the 3Dfx is the strongest, although it suffers from certain constraints that can cause problems. But in terms of pure performance, I think it's got to be the one.

Edge: What details can you reveal about your next project, *Dragon Blade*?

DM: It's a game set in a medieval universe with all the clichés associated with RPGs such as experience and damage points – but these will be invisible to the player. Our aim is to produce a RPG that is accessible to all, to get non-RPG players to undertake the quest. It's a project we've wanted to do for a long time which was held up because of the PlayStation version of *Fade to Black* and *Moto Racer*, but that we now continue with the benefit of hindsight and experience from *Moto Racer* when dealing with exterior environments, for example. We'll integrate all of that into this new concept which will support network play, allowing several characters to participate in the quest such as wizards, warriors, priests, and elves – all of the typical characters of legend, each with their own strengths and weaknesses. But the emphasis will be placed on action and combat scenes with strategic management elements so that characters are used to their best advantage.

Edge: Is the 3D engine an evolution from *Moto Racer*?

DM: We always try to improve the engine with each successive game. Again, this is the case here, with specific technical advancements in terms of lighting and better visuals allowing us to do a 3D game with vast interior and exterior settings, all in realtime.

Edge: Will you be developing for the N64?

PC: At the moment we have nothing planned, we're just working on PC and PlayStation, but we're not against the idea of getting an internal or external team to convert one of our titles for the Nintendo 64.

As far as cartridges are concerned, I think it's a shame such a machine does not use CDs, particularly as from a development point of view it would be easier for us as we wouldn't have to deal with memory size restrictions. However, it's more dynamic, the result is instantaneous, but the price of the software is higher because of the format.

Edge: Finally, will we see Conrad again, perhaps in some new clothes?

TP: [Laughs] If there's another Conrad game, he will be able to change his clothes.

TG: At the moment nothing is definite, and if Conrad does reappear it won't be before 1999 or even 2000. *Moto Racer 2* and *Dragon Blade* will be 1998 releases so we wouldn't be able to undertake a new project until then.

PC: However, Conrad remains a strong element in the Delphine line-up and we have the possibility to do a sequel within the sci-fi environment that we adore – he's not dead, after all…

'I'm convinced we'll get to the stage where players will be appointed to be in charge of camera placement as things become more complex'



Prescreen Alphas

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No doubt fed up with the publicity garnered by its rivals, both those with their own 'better than *Quake*' engines and those licensing the technology, id has released the first shots of ***Quake 2***. Though the firm remains tight-lipped as to the game's plot, setting and level designs, it's already obvious that the sequel to the best-selling PC game will represent a significant leap over its previous incarnation.

By the time *Quake 2* is finished, the entry-level PC will be a 200MHz Pentium, almost certainly equipped with a 3Dfx card or similar. The Texas-based id has been focusing in recent years on technology rather than specific game concepts, favouring OpenGL over Microsoft's D3D API, and pioneering multiplayer solutions, and it can be counted on to push the PC to its limits. From the screenshots most recently released, a number of improvements are already evident. Realtime shadows and dynamic lighting effects, which were originally dropped from *Quake*, will feature this time around, as will transparent water, a feature that would have significantly enhanced the original game, particularly in the superb deathmatch mode. The monsters, too, that were criticised for being too basic (or even 'too brown') in *Quake*, are a generational leap forward, constructed from many more polygons for a greater variety of creatures, and fully animated instead of key-framed, for more convincing movement.

The real challenge for id, however, won't be a technical one (all the special effects promised for the sequel will be de rigueur by the time the game is complete), but a creative one. Though *Quake* was untouchable as a multiplayer experience, it was sadly lacking in oneplayer mode, particularly when compared to its forebears, *Doom* and *Doom II*. John Romero, who recently left id to form development company Ion Storm, has said that all of id's pioneering titles are effectively technology demos, and for







First shots of *Quake 2*: it's already obvious that the *Quake* engine has advanced considerably. Textures are far more detailed, as are creature models. This time around, id promises dynamic lighting, realtime shadows and transparent water (which should improve the deathmatch mode), and greater variety in the game's scenery. Some of the rooms (below) are breathtakingly huge, and the mood, as ever, is pure dystopia



















Top Gear Rally from Boss Game Studios is one of the next wave of contenders for the title of supreme N64 racer, which is noticeably lacking – and therefore badly needed – from Nintendo's current range of N64 products. The finished title will offer impressively realistic-looking weather conditions

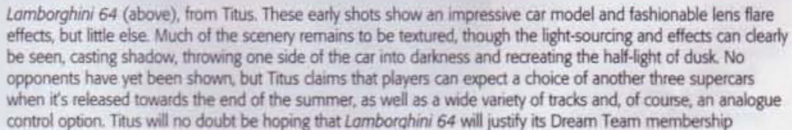
the real meat, gamers should wait for the sequel. If that's true, then *Quake 2* could well fulfill its promise as one of the most eagerly awaited games of the year. If not, then the Internet, at least, won't know what's hit it come Christmas.

Compared to other platforms, the Nintendo 64 has yet to possess an adequate racing title, but things may be about to change with four new driving games destined to appear on the 64bit console. *Top Gear Rally* follows on from the successful *Top Gear series* for the SNES; as its name suggests, the Boss Game Studios' game concentrates on off-road racing antics, offering six tracks, nine customisable vehicles with two hidden cars, the usual three modes of play – tournament, arcade, and practice – and variable weather. The latter is remarkably impressive in its realism as Boss has made good use of the N64's lighting effects – particularly the reflections off the cars' sleek bodywork – as well as including a high level of detail. The finished version will include a split-screen mode allowing two players to brave rain, snow and fog in order to race along the customary bridges and tunnels. However, ▶









Lamborghini 64 (above), from Titus. These early shots show an impressive car model and fashionable lens flare effects, but little else. Much of the scenery remains to be textured, though the light-sourcing and effects can clearly be seen, casting shadow, throwing one side of the car into darkness and recreating the half-light of dusk. No opponents have yet been shown, but Titus claims that players can expect a choice of another three supercars when it's released towards the end of the summer, as well as a wide variety of tracks and, of course, an analogue control option. Titus will no doubt be hoping that *Lamborghini 64* will justify its Dream Team membership









The PC gets yet another flight sim, this time from MicroProse. *Falcon 4.0* is at least remarkable for its scenery detail and engine, which should draw to the horizon without the need for excessive fogging effects







Arguably the best features of Imagineer's forthcoming N64 title, *Multi-Racing Championship*, are its superb car physics model and handling routines. Drive onto gravel, and the the car skids, the rear-wheel drive pulling the back of the vehicle into a slide. Analogue pad and Jolt Pack support add to the realism

SF Rush is a promising and much needed title for the Nintendo 64




◀ the game will not restrict players to the track, allowing them instead to leave the road and explore the environment should they wish to do so.

Lamborghini 64 from Titus, meanwhile, is a tarmac racing-only affair, featuring the Italian supercars hurtling along wide, US-style roads. Five racing modes will be offered and in addition to the Lamborghini Diablo featured in these shots, a further three cars are promised. At this stage there is very little texturing in evidence and the environment looks barren, something the developers will hopefully attend to before the game's release.

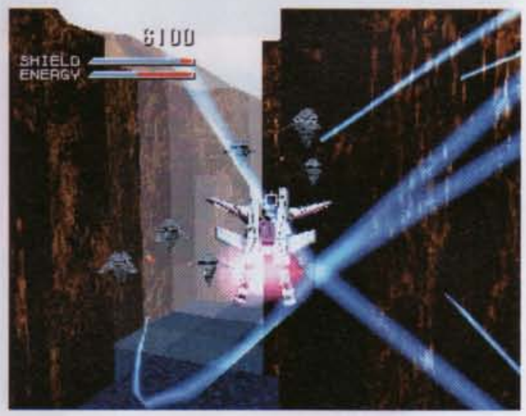
Imagineer's ***Multi-Racing Championship*** continues the racing theme, adopting a rally-cross approach by incorporating tarmac and dirt sections into the same circuit. Its graphics are currently looking impressive, with a pleasing level of attention to detail (brake lights, dust, headlights, etc), while the circuits offer different routes to negotiate and hidden shortcuts for the player to discover will also be present. In the version **Edge** played the handling was great, with a completely different driving style needed to be adopted when moving from one surface to another (the Jolting Pack rumbling effectively when travelling over rough terrain).

Atari's ***San Francisco Rush*** is also due to make an appearance on Nintendo's machine. The game is being converted from what was one of the first coin-ops to incorporate the Voodoo Graphics chipset technology. Although it's doubtful that the N64 version will be able to match the arcade version's visuals, the game is currently looking early but should still incorporate the best elements of San Francisco's steep, narrow streets resulting in huge jumps as the player hammers around the detailed and exciting racing environment looking for shortcuts in order to catch up with other competitors.

On the PC, MicroProse is continuing its combat flight simulations with ***Falcon 4.0***. The multiplayer game takes place over the Korean peninsula with the player taking on the role of an F-16 jet fighter in a series of photorealistic,



Micronet's *EOS* marks a return for the company after a prolonged absence from the gaming scene. The developer has tried to differentiate its title from previous shoot 'em ups by including obstacles for the player to avoid, giving the sense of 3D. Visually, the game boasts extravagant lighting effects combined with a high polygon count



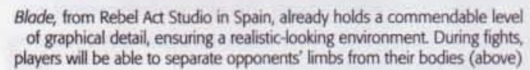


According to Sony's marketing team, *Crash Bandicoot 2* should differ substantially from the original. Levels will be less linear and the paths wider, although still slightly restrictive (left). Rather predictably, the platform game will again feature Crash's nemesis, the evil Dr Neo Cortex (far left)









Blade, from Rebel Act Studio in Spain, already holds a commendable level of graphical detail, ensuring a realistic-looking environment. During fights, players will be able to separate opponents' limbs from their bodies (above)









Acclaim's PC strategy sim, *Constructor* (above), T•HQ's *Pax Imperia* (top)

texture-mapped settings. MicroProse believes the graphics, combined with detailed models of F-16 avionics and weapons, could result in the most realistic flight sim to date.

After a long absence, Micronet is back with a 3D shoot 'em up for the PlayStation. In ***EOS***, the player controls a robot in order to defend his country from its violent neighbour. Although *EOS* resembles *Ray Storm* in the view it adopts, it will allow the player to slalom between objects. With a high polygon count and some impressive lighting effects, *EOS* currently looks like a promising July release.

Work is already well under way on ***Crash Bandicoot 2*** (working title), Sony's follow up to last year's successful platform game featuring the orange marsupial. Early details suggest that gameplay has changed from a simple linear obstacle course into levels offering different paths to pursue. The story picks up where the original left off, with Crash again having to face Dr Neo Cortex. New moves will be available and, of course, different enemies will have to be fought. The game is expected to support Sony's analogue pad in order to exploit Crash's new-found 3D freedom.

Rebel Act Studio's PC title ***Blade***, offering a fantasy world of polygon characters able to perform a variety of moves, is looking promising. Combat with any of the game's many weapons results in wounds and mutilations making it possible to hack opponents to bits, a particularly effective feature if using the eightplayer network play. The 3D world employs realtime lighting and shading effects. ▶

Tantalus is responsible for the PC conversion of *Manx TT*, which will feature the now obligatory 3D card support. It has been pre-empted somewhat, however, by the already excellent *Moto Racer*















Virtual Hiryuken from Culture Brain boasts highly detailed fighters and a 60fps frame rate on the PlayStation. The company originally produced lacklustre SNES titles such as *Golden Fighter* although if the recent demo **Edge** witnessed was anything to go by, it must have polished up its act. Whether the PlayStation really needs another beat 'em up is another thing altogether...

Flying Nightmares 2, from Simis, will take advantage of the PowerVR chipset









Psygnosis is working on a number of accelerated PC 3D titles at the moment, including this World War 2 flight sim. It's untitled as yet, but marks something of a departure for the company, more commonly associated with shoot 'em ups and racing titles than sims. Expect plenty of action

By the time ***Prey***, from 3D Realms, finally hits the streets, *Quake 2* may be almost upon us. The game, which features technology and maps which look alarmingly similar to id's masterpiece, was due for release some six months ago, but now looks unlikely to arrive this side of Christmas. The wait may prove worth it, however, if the team can deliver on their latest promises. *Prey*, it is claimed, will run in hi-res 16bit colour and boast many of the features mooted for *Quake 2*, such as realtime shadows and transparencies, but the most significant development is its art. Instead of presenting PC gamers with yet another grey/brown maze game, 3D Realms looks to be drawing on its experiences with *Duke Nukem 3D*, and creating a colour-saturated world that reflects the alien origins of the environments. The plot is rather original, too, with the player cast into a map to do battle with three alien races, the key being survival.

The sequel to last year's surprise hit *Tomb Raider* must surely be. The follow up again features Lara Croft but this time most of the action takes place outdoors – Venice and the Great Wall of China are but two examples. Rather than releasing a substandard follow up, Core is making sure **Tomb Raider 2** improves on the original; Lara will be able to crawl and climb ropes, her opponents' AI will be more advanced, graphics will be more elaborate, with more puzzles and more varied locations. A hot tip for biggest selling game at Christmas, then.







Prey is already six months late, but could just be worth the wait. Though initially just another *Quake* clone, the recent graphical overhaul has left it with a distinctive, colourful look that could lift it above the *Unreal/Quake 2/Dark Project* pack when it's eventually released in the autumn

After the quality of Konami's *ISS Pro* on the PlayStation, Taito may find it hard to keep up with its 3D soccer title, *Super Football Champ*, though the arcade original at least offered an enjoyable kickabout













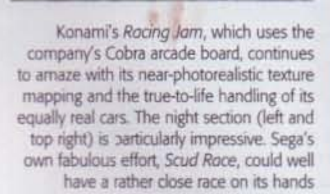
Having surprised everyone last year with the legendary *Tomb Raider*, Core's designers must have thought long and hard about how to follow their hit with a worthy successor so as not to turn what is arguably 1997's most eagerly awaited title into the year's biggest disappointment. Initial impressions suggest they have taken the (few) criticisms aimed at their first effort and managed to improve most areas of the game











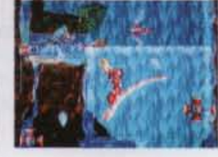


Konami's *Racing Jam*, which uses the company's Cobra arcade board, continues to amaze with its near-photorealistic texture mapping and the true-to-life handling of its equally real cars. The night section (left and top right) is particularly impressive. Sega's own fabulous effort, *Scud Race*, could well have a rather close race on its hands











Rockman X4 for the PlayStation looks like a return to form for both creator, Capcom, and the series. So far, 32bit versions have disappointed but visually, at least, this appears fabulous







In-house titles *Psybadek* (top left), *Colony Wars* (left) and *Overboard* (above) provide a diverse range of gaming styles and prove there's much more to Psygnosis than simply flashy racing games



Psygnosis

While many look to Japan for leading 32bit console games, the creator of *Wipeout* is going great guns in proving that a wealth of quality software continues to be born on UK soil...







As for thirdparty input, Psygnosis boasts *Rascal* (top) from Southport-based Traveller's Tales, *F1 '97* (above left) from Bizarre Creations, and *Shadow Master* from Traveller's Tales offshoot, Tales 2

Although Namco and Sega have been widely credited with ushering in the 32bit age through the likes of *Tekken*, *Ridge Racer* and *Virtua Fighter*, Liverpool-based Psygnosis played a large part in recruiting western gamers to the cause. *Wipeout*, for example, with its slick sci-fi visuals and incredible speed, near revolutionised the racing genre, while *Destruction Derby* managed to create its own niche – the smash 'em up driving game – encouraging several imitators.

Since this first generation of PlayStation titles, the company has published many more successful products – some from its in-house teams in Liverpool and Stroud, and others from thirdparty developers like Bizarre Creations (*F1*). It has also toyed with Saturn development and, perhaps more promisingly, embraced the PC, leading the rush to experiment with and successfully employ 3D accelerator cards.

Edge recently made a whistle-stop tour of the company's many in-house and thirdparty teams to find out what is up their respective videogaming sleeves...

Of the two PlayStation titles currently in development at Psygnosis' Liverpool HQ, *Psybadek* is definitely the most offbeat. At first glance it looks like





The stunning lighting effects and overall visual quality evident in *Colony Wars* (PlayStation version shown) are unsurprising considering that its team comprises members who worked on both of the super-slick *Wipeout* games







Missions vary from spying to protecting civilian craft, so it's not all shoot, shoot, shoot

just a standard boarding sim, but this, claims producer **Andrew Bennett**, is not the case: 'Yes, the characters ride around on hoverboards, but this is very much a quest-based 3D platformer. We're trying to create a game which fits that genre better than some of the titles we've already seen on the PlayStation.'

Instead of presenting the player with a series of tubed courses as in other board-based games, *Psybadek* features 50 freely explorable levels based around five environment styles – Jungle, Mountain, Technoplis, Desert and Underworld. The

'Yes, the characters ride around on hoverboards, but this is very much a quest-based platformer'

game is also stacked full of standard platform elements. Platforms play an important part, of course, but there are also teleports and wormholes to transport the player from one part of the level to another, and moving platforms which hover precariously above lava pits and spikes. Pick-ups and power-ups appear too, with weapons like magnetic mines, boomerang bombs and seeker missiles available along with invulnerability and jump-jet power-ups.

The way that standard platform features have been merged with boarding sim elements is interesting. As in, say, *Cool Boarders*, the player has a range of tricks to call upon, but here they're not performed to gain points, they're used to knock out baddies. The better the trick, the more damage it does.

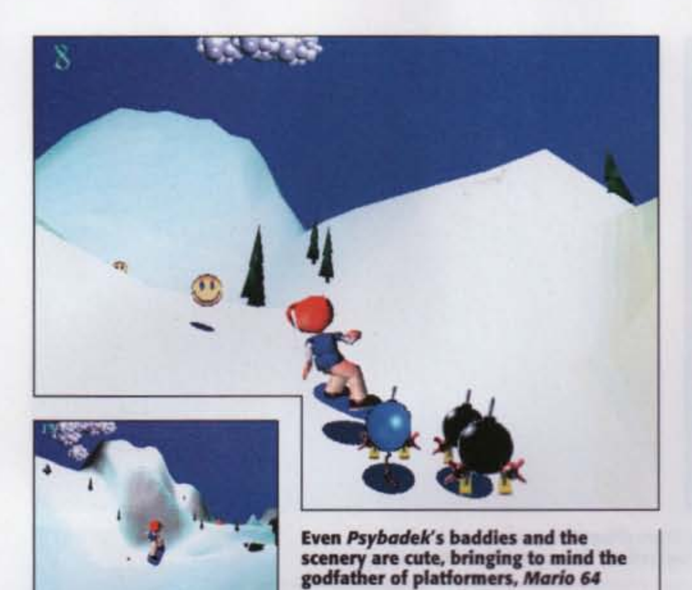
Also notable is the manga-inspired design of the characters, bringing in a hint of Japanese game style. The player can choose to play as either Mia or Xako, both of whom are represented as cute teenagers, each boasting their own special moves. There is also a whole gang of other cute kids in the game, each needing to be rescued at various points in the quest – a quaint play on RPG themes.

With such a large range of gameplay styles and influences, *Psybadek* could be a strong addition to the PlayStation's lacklustre library of platform titles. ▶



The scenery in *Psybadek* (3Dfx shots) is well-designed and smoothly textured, and each environment style gradually merges into the next rather than suddenly changing





Even *Psybadek*'s baddies and the scenery are cute, bringing to mind the godfather of platformers, *Mario 64*

Colony Wars retains the 'futuristic action' tag, but moves into the territory of the 3D flight shoot 'em up. The plot alone is pure 'Star Wars': mankind has colonised five solar systems and 40 planets, and now has a tyrannical hold over many kingdoms. Fed up of this interstellar dictatorship, a few of the outer systems form a new 'League of Free Worlds' (ie the Rebel Alliance) and set out to defeat Earth (ie the Empire) and its huge armada of spacecraft. The player naturally takes on the role of one freedom fighter and, in a series of spacecraft (scout, bomber, strike craft, etc), must choose a route through a tree of 70 missions.

Producer **Andy Satterthwaite** (who previously worked on *Wipeout 2097*) is unabashed about the game's inspirations: 'Our initial aim was to create a space epic. We all love "Star Wars", "Star Trek" and "Babylon 5", etc, and we really wanted to capture the feeling of space in the game. However, we also wanted to keep it fun, keep the arcade element in there, rather than the kind of thing you get with space games on the PC – y'know, "Ooh, there's a dot in the distance, get it into the middle of the screen and shoot it!" We wanted a close combat feel, but in a gorgeous space environment.'

Although the premise of *Colony Wars* is rather familiar, it is this emphasis on arcade-style combat and especially gorgeous visuals that set it apart. So far, only a minority of PlayStation titles have attempted to use the machine's hi-res capabilities, but this game brings its 512x240 mode into play with impressive results. The craft design is the piece de resistance: fully texture-mapped spaceships buzz past the screen leaving amazingly realistic vapour trails and blast flares. Even the scenery – usually understandably sparse in space combat games – has been filled with detail. Here, fully textured and light-sourced planets, nebulae and stars crowd each solar system.

Much effort has gone into making *Colony Wars* atmospheric and believable. Could this be the space shoot 'em up to blot the memory of *Wing Commander III* from the minds of console owners? At this point, the signs are positive.







Overboard's camera angle can be altered to view the lush scenery from almost any angle

Overboard is described by Psygnosis as a 'pirate arcade puzzle game', which sounds, if not unique, then certainly very different.

'Our aim was to produce something with a dash of originality and an emphasis on fun and playability,' confirms producer **Alan Bunker**. 'Many of today's action games are dark, moody and futuristic, which isn't necessarily a bad thing, but we wanted to inject light-heartedness back into games.'



It certainly looks like the gameplay lives up to this declaration of intent. In *Overboard*, the player takes control of a pirate galleon that must be sailed through 15 sea-based levels. The aim in each is to reach the gold at the end, but there's plenty to do on the way: tricks, traps and sub-missions litter each individual level, and there are secret areas, too, making the game appear very much like a classic NCL SNES title.

Adding to these puzzle and exploration elements is the inevitable shoot 'em up ingredient. Intelligent enemy ships, land-based gun turrets, balloons and submarines all play a part in the game,







The exotic weapons available in *Overboard* include a lightning gun (main), depth charges (above left) and a flame thower (above right)









***Overboard* takes place in several different graphical regions, each impeccably designed**

meaning attack can come from almost any angle. There's also a weird range of end-of-level baddies (giant lobster, Inca Statue, diplodocus) and weapons (mines, depth charges, oil slicks, flame throwers) which suggests that *Overboard*'s designers are following the sadly often-ignored Nintendo rule that reality should never get in the way of a good game idea.

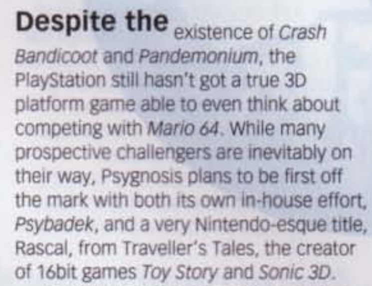
As for visuals, *Overboard* has an overtly colourful cartoon style which suits the apparently tongue-in-cheek nature of the gameplay. The scenery is neatly built, detailed and varied with the five scenic styles – Caribbean, Inca, arctic, industrial and Middle East – all boasting individual buildings and landscape features. Plus, the various Gouraud-shaded, texture-mapped ships are equally well-conceived in accurate-but-cutesy PlayStation interpretations of the real things.

Hiding beneath the toyland graphics are a few realistic touches. The movement of the player's ship, for example, is affected by the roll of the ocean, and there are variable weather conditions (cloud cover, fog banks, etc) which should add a little extra for the would-be pirate to worry about. As with the weapons and end-of-level baddies, however, a few realisms have been abandoned in favour of playability. **Edge** finds it hard to believe galleons really did perform 'handbrake' turns and rush through the seven seas like high-powered motorboats. They do here.





End-of-level baddies like the Inca statue (above) tower out of the screen and dwarf the player's pirate ship



Despite the existence of *Crash Bandicoot* and *Pandemonium*, the PlayStation still hasn't got a true 3D platform game able to even think about competing with *Mario 64*. While many prospective challengers are inevitably on their way, Psygnosis plans to be first off the mark with both its own in-house effort, *Psybadek*, and a very Nintendo-esque title, Rascal, from Traveller's Tales, the creator of 16bit games *Toy Story* and *Sonic 3D*.

Rascal, the son of a scientist, is sent back in time after fiddling with his father's time machine. It is then up to the player to get back to the present, solving puzzles, avoiding traps and battling with the huge range of evil creatures. The journey is diverse, spanning seven worlds – a medieval castle, the wild west, Atlantis, Aztec, a pirate ship, prehistoric, and the 'Time Dimension' – each featuring three time zones (essentially creating a total of 21 levels to travel through). Additionally, there is the promise of a bonus game if enough 'bonus bubbles' are collected throughout the adventure.

Visually, *Rascal* arguably surpasses ▶



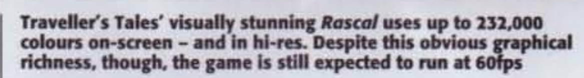




***Rascal* boasts some beautiful realtime lighting and shading effects which accentuate the atmosphere of each location to maximum effect**







Traveller's Tales' visually stunning *Rascal* uses up to 232,000 colours on-screen – and in hi-res. Despite this obvious graphical richness, though, the game is still expected to run at 60fps

◀ anything yet seen on the PlayStation and, like *Mario 64*, the game is packed with impressive peripheral touches – the pirate ship level, for example, features a rocking screen to give the impression of rolling waves, and a chrome suit of armour in the medieval castle level boasts a splendid N64-style reflection effect, glittering with light from surrounding torches.

Away from attractive background features, the designers are also promising decent character design (even if these early conceptual designs reveal a rather cheesy approach). As a technical exercise *Rascal* could well be a title to back up Juan Montes' unpopular and highly controversial assertion that *Mario 64* does nothing that couldn't be achieved on the PlayStation (see **E**44). The team does at least have the pedigree to give it a stab...

The craze for first-person shoot 'em ups shows no sign of abatement and *Shadow Master*, from Tales 2 (a team made up of ex-Travellers Tales members), follows a familiar line in terms of setting: an evil dictatorship is moving through the galaxy, stripping planets of their resources and enslaving the indigenous lifeforms. The player has to stop this shadowy empire by visiting seven of the overtaken worlds and killing all the baddies.

There are a few departures from the *Doom* rule book, however. Players view the action from an attack craft rather than through the eyes of the game character, and the action is mission based so they will often have to protect other craft rather than just go around blasting things. Also interesting is the fact that the visuals have been designed by fantasy artist Rodney Matthews. Despite his input, however, the game bears more than a passing resemblance to Neon's *Tunnel B1*; a claustrophobic sci-fi setting, great explosion effects and the use of an attack craft as the player's vehicle all sound familiar. Hopefully, though, the varied nature of the planet environments (ranging from arid deserts to tropical rain forests) will give *Shadow Master* the graphical diversity *Tunnel* sadly lacked.

Rascal could be the title to back up Juan Montes' claim that *Mario 64* could be done on the PlayStation



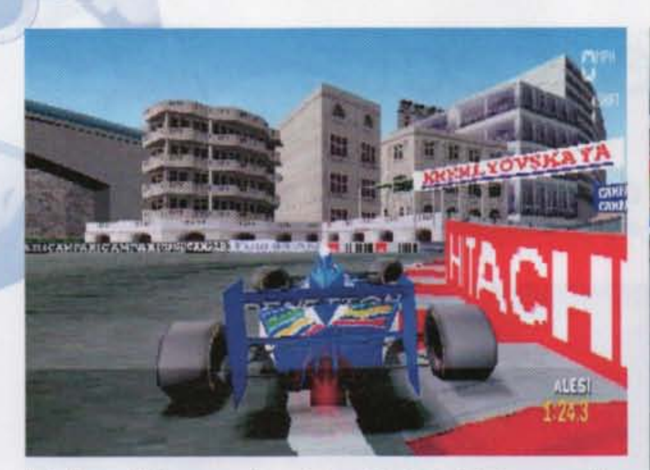
Enemies in *Shadow Master* include spiders, dragons, crabs, scorpions and exploding pods – each level boasts its own individual menagerie





In *Shadow Master*, the player can R&D new weapons – a novel idea





Serious collisions cause tyres to burst, body work to be removed, and cars to flip over, leaving debris scattered across the track





The split-screen option offers the vital twoplayer element that the original lacked

As is the case with all hugely successful sports games, a sequel to *F1* was inevitable. At least here the promise is a totally new game rather than a simple graphical revamp.

The most obvious change is chronological: *F1 '97* is based on this year's season rather than 1995's, and again includes all 13 teams and 17 circuits. Elsewhere, the changes are less obvious, but more profound. According to producer **John Rostron**, the engine was the first element to receive a thorough service: 'With *F1*, there were a few things we weren't doing correctly with the engine. Since then, we've run the code at Sony and they've shown us where we could have improved it. The mistakes were staring us in the face, but sometimes they need to be pointed out.'

It is perhaps this engine recoding that has led to the many visual improvements. Pop-up, the nightmare of PlayStation 3D, is kept to a minimum here, whereas effects such as lens flare and diffuse lighting are brought to the fore. Most important, though, is the jump to hi-res, which should have a significant effect on the visual quality – but won't, according to Rostron, hit the steady 30fps (NTSC) frame rate.

Much has also been done to heighten the realism of the game. On crashing, cars burst into flames, engines expire causing oil spray, while suspension buckles severely, affecting the car's handling. Authenticity continues with the inclusion of the 107% rule for qualifying, and the five red lights starting sequence introduced for last year's season. Plus, for the truly sim headed, pit-lane speeding penalties and the possibility to communicate with the team via an in-car radio also feature.

For those less concerned with the intricacies of the sport, the arcade mode hasn't been neglected (cars can power slide, for example) but it's obvious much work has been put into authenticity. *F1 '97* is certainly an ambitious project, then, and one that should easily prove as commercially successful as its money-spinning predecessor.

The 1997 line-up

Psybadek
PlayStation/PC
November

Colony Wars
PlayStation
November

Overboard
PlayStation/PC
October

Rascal
PlayStation/PC
November

Shadow Master
PlayStation/PC
November

F1 '97
PlayStation/PC
September





Spot visual effects, such as spray flying when cars skid across the track, are being used in *F1 '97*

Gex: Enter the Gecko

Crystal Dynamics' tail-thrashing lizard has survived the demise of the 3DO and is all set to return to the gaming world in this fleshed-out, all-3D sequel for the PlayStation







One of the the strengths of the original *Gex* was its wide range of level themes, and its PlayStation successor continues that tradition with inventively designed worlds such as Horror, Cartoon, Sci-Fi, Pre-Historic, Martial Arts, and a 'Tron'-like affair set inside a computer

Format:	PlayStation
Publisher:	BMG Interactive
Developer:	Crystal Dynamics
Release:	November
Origin:	US

Gex was *the* platform game for the failed 3DO system. While the game never pushed any 3D boundaries, the title character's quirky dialogue, TV-themed worlds and wall-crawling play mechanics made for an enjoyable game. Two years later, *Gex* is set to return in *Gex: Enter the Gecko*, still cracking his whip of a tail, clinging to walls and mouthing one-liners – only now in a completely 3D environment.

'It presents new and interesting problems for us to solve,' says senior game designer **Richard Lemarchand** about working in 3D. 'It also creates huge new gameplay possibilities, because you really can have path branches going off in all directions. As the game designers, we have to think about how we can help the player to perceive the spatiality of our levels, and I think that's the most important thing for anyone coming to 3D platform-game design.'

In a nutshell, the several levels seen by **Edge** present a richly lit and deeply textured world like *Crash Bandicoot*'s, with about the same range of freedom as *Tomb Raider* and action more on a par with *Mario 64*. Crystal Dynamics' design team was very wary of comparisons to *Bubsy*, the 2D platform bobcat whose leap to 3D has not been inspired.

'Almost every location in *Bubsy 3D* feels the same,' says lead designer **Daniel Arey**. 'In this game, because of the different shapes that Richard and other people have done in the level and the different lighting, you always know where you are. For instance, every time you're





A wealth of quirky enemies feature in *Enter the Gecko*'s rogues' gallery. The inspiration for this nasty example isn't difficult to fathom



Project director Glen Schofield is convinced that *Enter the Gecko* is a match even for *Mario*

going through a door it's like, oh yeah, this is the triangular door, or this is the door with the raised stepway, and it makes it just very easy for players to map out the environment in 3D.'

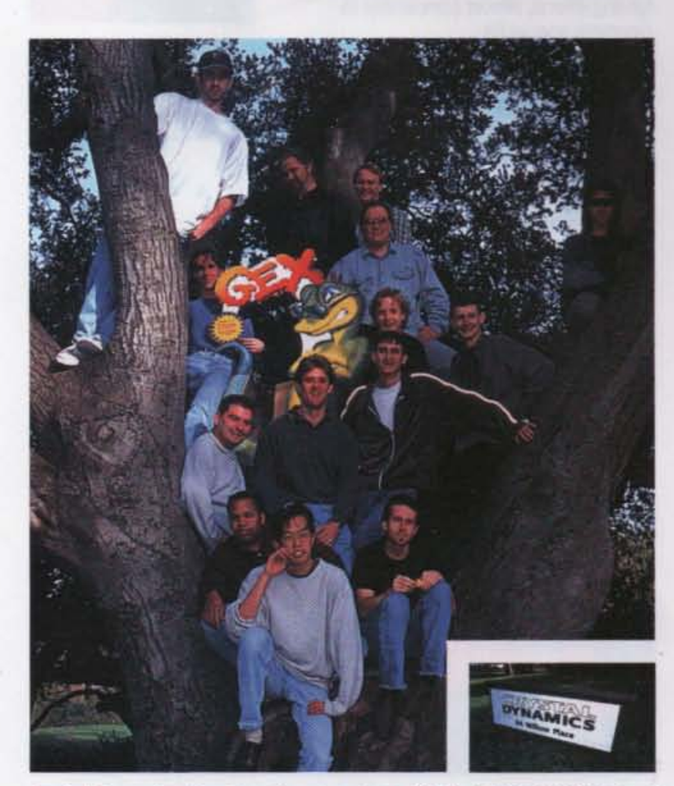
As Gex can 'facestick' to some surfaces and climb on walls and ceilings, the designers have really been able to maximise the 3D environment. Lemarchand, a veteran 16bit designer, explains how he created a maze on the ceiling through which Gex must navigate. 'I think this is the thing that really knocks Gex into the 21st Century,' he says, 'because suddenly everything in the 3D environment is a potential play surface, not just the floor, which was the case for *Crash* and *Bubs* and even *Mario*.'

Arey, who worked on the design of the original *Gex*, cuts in to explain that many secrets will be found in places only

As Gex can 'facestick' to surfaces, the designers have really been able to maximise the 3D environment

reached by exploratory climbing. 'Suddenly,' he says, 'it's like "*Descent Gecko*". You're not just confined to a simple flat plane or even the stair step plane – you're actually getting up on that wall. So 3D means something.'

This time, Gex is working as an 'X-Files'-type agent sent to capture Rez,



Crystal Dynamics almost went under along with the ill-fated 3DO, but *Enter the Gecko* marks its return with a leaner and perhaps fitter team





***Gex's* 3D backdrops are enhanced by rich colours, and lighting and transparency effects which exploit the PlayStation's capabilities**

which means traversing more levels with cable-channel themes like the original. According to **Scott Steinberg**, Crystal's VP of marketing, the worlds will be just as dramatically different: 'The feedback from the first *Gex* was that the tile sets were so diverse that when you were in, for instance, the kung-fu levels, it was dramatically different than being in the cartoon levels, and people loved that.' While some themes return, like the Horror world and the Cartoon world, Steinberg insists that the level of parody will be taken to a much riskier extreme.

Gex: Enter the Gecko already boasts some superior technology and works with Sony's new dual analogue pad. Comedian Dana Gould will also return to help write and voice Gex's one-liners – and, because the lizard's 3D-modelled face can move to 12 animated positions, he will be lipsynched in realtime to the voiceover.

Not long ago, it was uncertain whether Crystal would re-emerge from a major studio downsizing. However, not only is it likely that this game will reinforce the PlayStation's credentials as a platform upon which convincing 3D experiences can be realised, but it looks like both Crystal and Gex are poised to leap to places that some game characters can only dream of clinging.



***Enter the Gecko* exploits the full effect of its impressive 3D environment by training the camera on the action from every conceivable angle**

Out of the Void

A group of technologically aware defectors from Looking Glass is attempting to harness the 3Dfx chip and ride it home with its maiden title – the first high-end, native 3Dfx game







The game uses real space physics, which doesn't permit traditional game production tricks, such as fogging out far-off objects...



GameFX's realistic 'spacial partitioning system' is but one of a host of graphical strengths that *Out of the Void* employs





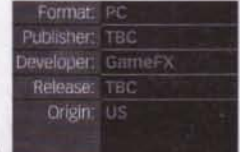
The game's visuals have a hugely distinctive, almost ethereal quality

Many game companies have been born out of a split. Such was the case with GameFX, now nine months old, when **Noah Davis** led a group of fellow Looking Glass employees down the road to its new Arlington, Massachussetts office. Davis, president and CEO of GameFX, and LG's former director of technology, regards the move as a forward-thinking one.

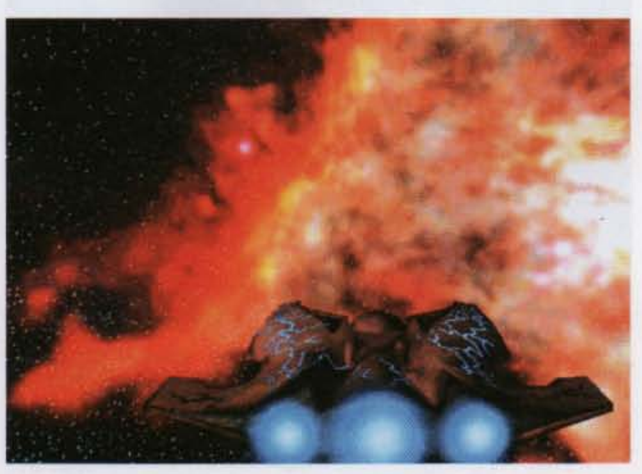
'GameFX is dedicated to putting high technology back into gaming,' an even-toned Davis says. 'We aggressively go after cutting-edge technologies, not necessarily reinventing but adapting them, and putting them inside of gaming components as quickly as possible.'

Given the look of its first title, *Out of the Void*, GameFX is managing to do just that. This 3D space shooter's gameplay is still at an early stage, and Davis insists that the design will be kept arcade-simple. It's nevertheless a technically stunning example of how 3D acceleration can transform PC games, with an apperance that would have only been achievable in prerendered footage only a few years ago. The fully 3D environment features polygon-modelled spacecraft using complex textures with more detail than anything in the current market. Also immediately evident are the extraordinary lighting effects, almost comparable to cinematic special FX.

Breakthrough graphics don't usually come with mass-market machines, though, which is why, currently, *Out of the Void* only runs on a P200 and requires 3Dfx acceleration. 'If a common machine is a P60, P90 or P120, that's too low for us right now,' says Davis languidly. While readily accepting that the mass audience isn't there for him yet, Davis believes that if GameFX builds it, they will come.



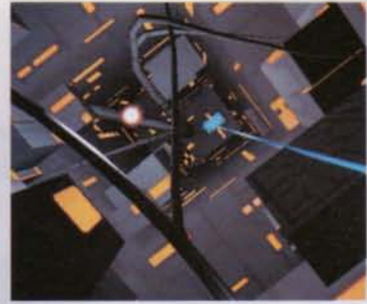
Format:	PC
Publisher:	TBC
Developer:	GameFX
Release:	TBC
Origin:	US



Instead of ruining visual continuity by displaying a damage meter, the colour emanating from the ship displays its damage



***Out of the Void*'s engine pushes around tens of thousands of polygons and uses several lighting models to create a visual style that is more commonly associated with prerendered sequences**





To achieve this end, he has established strong relationships with both 3Dfx and Intel. Both companies need developers like GameFX which can create showpieces for their hardware, as 3Dfx president (and ex-Capcom USA boss) **Greg Ballard** concedes. '3Dfx really thinks of itself as a platform, not as a chip company,' he says. 'They hired me as a way of making a connection to the games business, the theory being that we need to have a direct link to game content as a way of exploiting the power of this technology.'

And the competition in the accelerator race has already grown. 'This title has been developed on a board released last November,' says VP of marketing **Andy Keane**. 'You're not on a six-month treadmill with our chip. *Out of the Void* is evidence of this. This chip will still have distinct value into the following year.'



The player's ship morphs and becomes more powerful at the end of each level to give the game a somewhat evolutionary nature

Davis is also very much behind the 3Dfx development team. 'We're of like minds,' he says. 'They want to do stuff that no one understands how to deal with quite yet, and that's exactly what our goal was.'

Interestingly, Davis sees *Out of the Void* as an episodic game, with new gaming episodes available every couple of months.

'Basically, GameFX is a big experiment,' Davis says. 'We have different methodologies for games and their storylines.' He explains that a comic book will ship with the game, providing players with a background story for the action. As **Edge** went to press, GameFX was in negotiations with potential publishers for this and future titles. 'With this type of space-action game, there are a number of licences begging to be done like that,' asserts Davis.

But due to the limited number of gamers who will be able to run *Out of the Void*, Davis doesn't expect the game to be available through retail. However, he emphasises how proud he is of his team, and what it has managed to accomplish in the face of companies which have been slow to accept new technology. 'The thing is, there's such a gap between what current games give people and what's available given the current processors and 3D accelerators. It's gonna take a year for people to catch up.'



***Out of the Void*'s unique visual style will ensure it attention – though not to the mass market**

Air Race

Little-known Japanese codeshop Xing has set its sights on the lucrative PlayStation racing market with its latest title, throwing out cars and putting planes in their place. Will it fly?









A racing game that swaps the open road for the wide blue yonder, *Air Race*'s distinctive approach and colourful visuals will be its trump cards





Each level has invisible boundaries whose limits cannot be exceeded (above)

Format:	PlayStation
Publisher:	T•HQ
Developer:	Xing
Release:	July (UK)
Origin:	Japan

At first glance, *Air Race* (known as *Reciproheat 5000* in Japan), from Japanese developer Xing, looks like yet another abortive attempt to bring the PC favourite, the flight sim, to the PlayStation, loaded, as it is, with models of prop-driven fighter planes from the Red Baron variety to Japanese Zeros.

In fact, *Air Race* taps into the most popular 32bit genre, the racing game, its use of planes rather than cars paving the way for gameplay closer to *Wipeout* than *Rage Racer*.

Each of the 12 planes can perform simple stunts, and each has its own, unique, speed and handling characteristics, and, throughout races, are limited to an invisible ceiling to ensure that they never stray too far from the track.

There's more room for manoeuvre than fans of the Psygnosis classic will be used to, with the routes routinely splitting and opening out, blue markers indicating the correct path. It won't be advisable to deviate from the set course, though there will be short cuts to be exploited, and extra points and speed-up rewards for perfectly executed barrel rolls and for flying through arches and various tunnel sections.

As yet, only four tracks have been completed (although more are promised for the final version) and they adhere to the standard forest/ice/canyon/city designs common to seemingly every racing game ever created.

The inclusion of a split-screen twoplayer mode, with little noticeable slow-down, should provide added appeal, and Xing will be hoping that the planes themselves provide enough variety to distinguish *Air Race* from its more terrestrial counterparts.



The obligatory ice level, replete with family of penguins. Players must follow the blue spheres





The split-screen twoplayer mode is impressive. Head-to-head gaming is made especially interesting by the diverse range of planes on offer

Nessa no Hoshi

After two years spent licensing products, Japanese publisher Itochu has turned its back on western conversions, electing instead to produce its own science-fiction-themed adventure

Although Itochu (Japan's biggest trading company) is not that well known within the videogame industry, it first ventured into interactive entertainment two years ago, publishing conversions of titles such as *Colonisation*, *Transport Tycoon*, and *Burn Cycle*.

However, the company has now decided to publish its own games for the PlayStation and Saturn, and has several titles in development: *G-Vector*, a Saturn shoot 'em up, *Mobius Link 2*, a conversion of the successful *Windows 95* war sim, a 3D PlayStation version of *Transport Tycoon*, and *Nessa no Hoshi*, an original concept again for Sony's machine.

The action takes place on Nessa, a planet where humans and aliens coexist in a desert environment. However, the planet's most important resource – water – is controlled by the alien community. As Dan, whose mother is dying, the player embarks on a quest to find water and cease control of the precious liquid, saving his mother in the process.

Most of the game features precalculated sequences with the player selecting the direction of travel. However, *Nessa* differs from the usual adventure game concept by including fighting stages akin to a 3D beat 'em up, complete with throws and special moves, between the precalculated wandering. Further differences are evident in the way the game progresses. Players who find the combat sequences too difficult, for example, will be able to complete Dan's journey by engaging in more exploration and puzzle solving.

For *Nessa*, Itochu has employed Carlos Kuroda, president of Genki and developer of the *Kileak the Blood* series, to take charge of the game plot (here working independently from his own company). Responsible for character animation and rendered sequences will be Ichiro Itano, who has designed fighters for some of the PlayStation's most popular beat 'em ups.

Assimilating two game genres into one is not a new concept. Square Soft, for example, has tried this twice with the *Tobal* range (by including a rather weak 'quest' mode in addition to the fighting action). It will be interesting to see whether Itochu has more success with this intriguing title.



As Dan, the player must search the land for water, fight aliens and return home to save his mother in the process. All in a day's work...





The game borrows heavily from 'Dune'



***Nessa* mixes FMV with realtime game sequences**

Format:	PlayStation
Publisher:	Itochu
Developer:	In-house
Release:	Sept (Japan)
Origin:	Japan





Nuclear Strike

Having established the paradigm with its hugely successful *Strike* series, Electronic Arts is returning to action with an explosive new helicopter action extravaganza

Progressive levels feature affectionate homages to the game's predecessors







Continuing the tradition of *Soviet Strike*, the polygonal backdrops are richly detailed

Format:	PlayStation/PC
Publisher:	Electronic Arts
Developer:	In-house
Release:	September
Origin:	US

Game companies have always adhered to the 'if it ain't broke, don't fix it' approach. Successful formulae are safe. Successful formulae sell games (ask Capcom). Occasionally, though, a developer follows an established formula and comes up with a product that is new in all the right places.

Nuclear Strike picks up where the top-ten-selling *Soviet Strike* (**E**39) left off, recycling and refining the *Soviet* engine, but with several crucial improvements. 'As far as gameplay goes,' says **Michael Kosaka**, the game's enthusiastic producer, 'we're coming back with a bunch of new features. This time the engine's going to be faster and smoother. We've got a better frame rate going on.' Elsewhere, adherence to the *Strike* tradition entails a ludicrous plot involving a lunatic and a nuclear device.

Foremost among the new features is the ability to pilot new vehicles. 'It's not just the Apache,' Kosaka explains. 'We've got a Harrier, an A-10, tanks, a little bit of everything.' Additionally, EA aims to expand on *Soviet*'s ersatz *Command & Conquer* level where the player took control of a squad of troops; this will recur in at least one of *Nuclear*'s levels. New weapons, including infra-red tracking systems and flame throwers, will propel the game into the post-nuclear age.

Nuclear also offers a truly persistent environment. If a player shoots a spread of missiles into the ground, the resulting crater remains for the rest of the level's duration. The richly detailed polygonal models **Edge** was shown promise a level of visual finesse to eclipse its forebears.

Context-sensitive music (in the style of LucasArts mould-breaking iMuse) will match, beat for beat, the player's changing fortunes. Hardly original, but a pleasurable addition to the gaming experience nevertheless.

Answering criticism of the early *Strike* games' cliff-like difficulty curve, Kosaka is bullish. 'We're not going to rely on just giving you more bullets,' he says, 'because that's a cheap way to do it.' By channelling information to the player sympathetically, *Nuclear Strike* should prove far less monolithic to the gaming novice than its illustrious predecessors while retaining its appeal to die-hard fans.







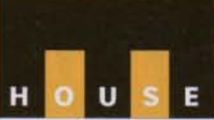
***Nuclear Strike* puts a broader selection of combat vehicles at the player's command**





Players of *Soviet Strike* endured ponderous, clunky scrolling thanks to the dubious technique of spooling background geometry from CD. *Nuclear Strike*'s refined engine boasts a hugely improved frame rate, fortunately

MELBOURNE HOUSE



Managing director Adam Lancman (left) and chairman Fred Milgrom have kept Melbourne House on the rails for a staggering 18 years

Australia's premiere developer has been making games since 1980. It created the legendary 8bit adventure *The Hobbit* and the grandfather of the beat 'em up, *Way of the Exploding Fist*. Now it's planning a comeback. Except, that is, it never really went away...

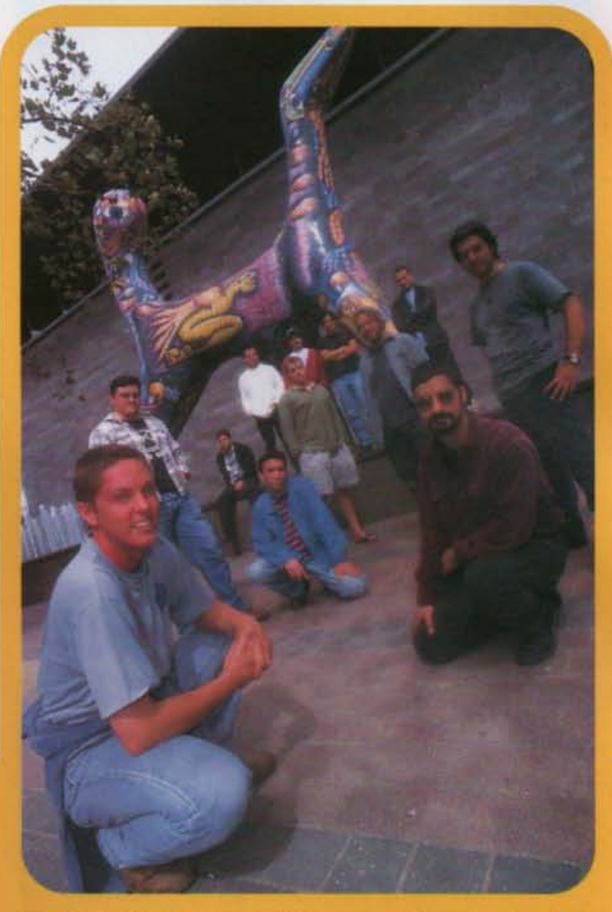
Edge travels halfway round the world to visit a videogame development outfit that is almost as old as the industry itself...

Melbourne, Australia, isn't the first place most people would think of as a key location on the world map of videogaming: Tokyo, the west coast of the US, and the UK are the gaming hotspots that provide the bulk of 1997's headlines and blockbuster output. But this hasn't always been the case.

Back in the early-to-mid-'80s, when the Commodore 64 and Sinclair Spectrum were the game-playing platforms of choice, the door was left open for anyone – just as it is in the PC market now – for any company to make a game and publish it. This time period is one of the classic gold rush, experimental eras of western game development and spawned such veteran game companies as Ocean, US Gold, and Ultimate Play The Game (which would later change its name to Rare). But before all of these companies were even drawing up design documents or hiring programmers, Melbourne House (the publishing label of Beam Software) had become the premiere game label of a generation. 'You'd have to go to Japan to find a game developer who started before we did and are still going strong,' says **Alfred Milgrom**, chairman of Beam International, with a justifiable sense of pride.

The company first shot to centre stage in 1982 with *The Hobbit* (arguably the world's first graphic adventure, based on Tolkien's fantasy novel) and reinforced its status in 1985 with *Way of The Exploding Fist*, a one-on-one karate game with excellent playability and memorable music, which helped paved the way for the hundreds of beat 'em ups since. *Fist* sold an astonishing 500,000 copies across Europe. With a supporting cast of solid titles such as 1983's *Penetrator* (a *Scramble* clone), 1984's *Lord of the Rings* (the much-anticipated follow-up to *The Hobbit*), and 1986's *Rock 'n' Wrestle* (the first wrestling game for computer formats which, yes, mixed the sport with 'rock' music), Melbourne House blazed a trail that others would follow. It is certain that many of today's game designers were first inspired by these Australian pioneers.

In 1987, however, the Melbourne House story seemed to come to a close. 'Beam Software was running the development from Australia and Melbourne House was our UK-based publishing arm,' explains Milgrom. 'So we had the full publishing operation. But around 1987 a lot of our UK people went on to other companies and at around the same time the industry was moving from 8bit to 16bit. It was a pretty chaotic time. We didn't have the management ▶



The *Krush Kill 'n' Destroy* (*KKND*) team pose in their natural habitat. The game has been well received the world over

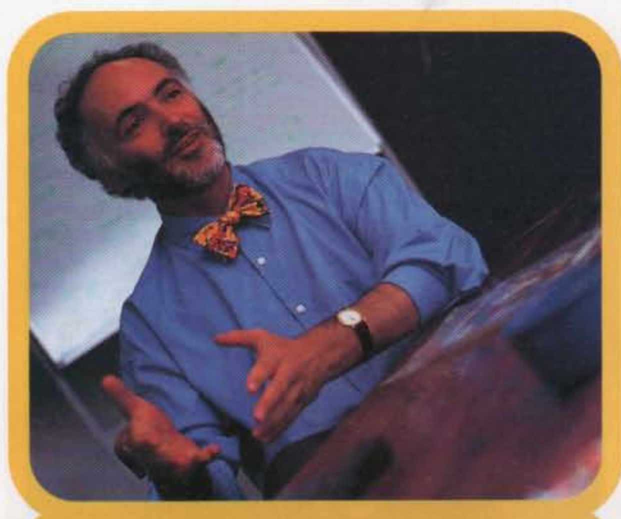








Krush Kill 'n' Destroy (far left) *Alien Earth* (left) and the recent *Cricket '97* (top left)





Fred Milgrom reminisces about Melbourne House's early days (top). Meanwhile the *Alien Earth* team take over a tram (above)

depth at that time to run both the publishing and development sides of things, so we ended up selling off the Melbourne House publishing side to Mastertronic.'

And from this point on, the Melbourne House name floundered. 'Mastertronic decided that Melbourne House should move directly to 16bit and ditch its 8bit heritage,' explains Milgrom, 'and as a result we spent a whole year developing products that went nowhere. They never got published. It was a complete waste of time. A year later Virgin bought Mastertronic and got the Sega licence – which is what I think they were really interested in all along – made heaps of money, and Melbourne House was left to fall by the wayside.'

Beam Software then devoted its energies to becoming a developer of games for other publishers, a task at which it has achieved prolific success. With 28 NES games, 8 Mega Drive games, 14 Super NES games (including the superlative *Smash TV* conversion), 25 Game Boy games, three PlayStation games (including *Gex* for Crystal Dynamics), and two Saturn games (including *Lost Vikings 2* for Interplay) under its belt, Beam has kept itself busy. 'We were doing lots and lots of thirdparty development on the consoles,' explains **Adam Lancman**, Beam Software's managing director. 'We tended to get the jobs that no one else wanted to touch because we were known to have the technological smarts to achieve results in areas that no-one else wanted to attempt.'

These 'technological smarts' are largely born of Beam – as with all Australian game developer – having to remain largely self-sufficient. 'Nearly all of the game-making talent in Australia has, at some point, worked at Beam,' explains Milgrom. 'At the moment there are half a dozen companies coming up who are making games. There's Australis in Queensland who is doing *Dark Reign* for Activision, there's Digital Entertainment in Sydney who are doing multi-path movies, there's Silver Lightning who did *Moto Challenge*. And if anything characterises Australian development it's probably a sense of self-reliance and an ability to make your own tools. It's not as if any of us can just pop down the road to visit, say, MetroWorks to get answers to questions. We largely have to come up with our own solutions and sort out our own problems. And so far, we've been lucky enough to guess which way the market is going to change right more often than we've guessed wrong.' Lancman concurs: 'We wouldn't be here after 17

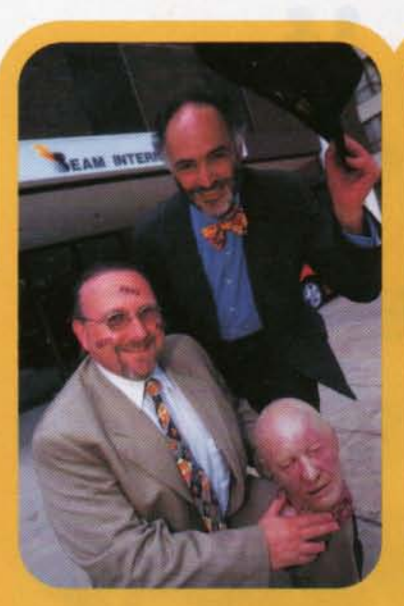








Alien Earth is Melbourne House's most ambitious project to date and is a loose follow-up to its highly regarded SNES action RPG *Shadowrun*




The company's head honchos in front of their HQ (left). MD Adam Lancman (right)

years if we didn't know how to change with the times and work with new technology.'

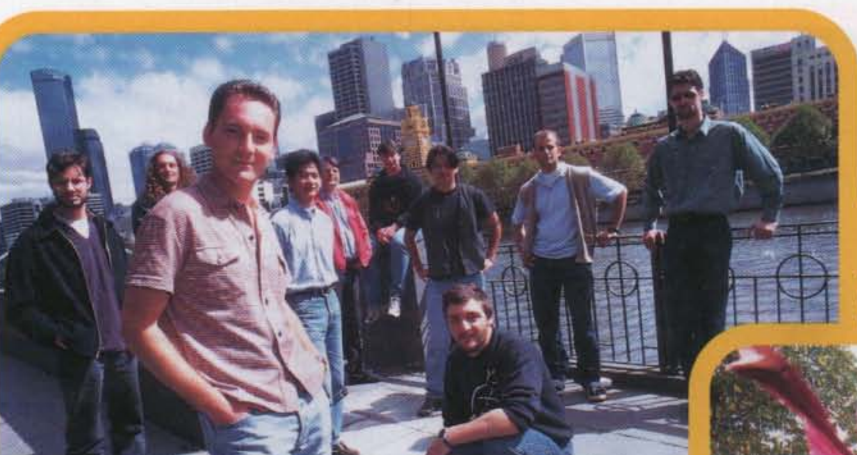
But the real news with Beam Software in 1997 is that it has relaunched Melbourne House as a label. 'Virgin simply let the Melbourne House name lapse,' reveals Lancman with a smile. 'So we took it back. It's ours again.' In March, the *Command & Conquer*-inspired *Krush Kill 'n' Destroy* (aka *KKND*) was the first Beam game to be released by the Melbourne House publishing label in almost ten years. It received critical acclaim around the world (E43) and was quickly followed by EA's *Cricket '97*. And more games are on their way. 'We're still going to continue developing games for other people,' explains Lancman, 'but we believe we have an understanding of what the punter out there is looking for. We're not driven by the sales and marketing people who often don't have the full picture or knowledge of who it is that's playing these games, so we can produce the games that we want to make for ourselves.'

As for the style of games that Melbourne House will be ▶





Alien Earth is currently looking like an excellently rendered PC adventure with multiple locations and some impressive SVGA detail. The smooth-scrolling backdrops are Z-buffered so that the player is briefly obscured when walking behind certain objects (above). The prerendered animations remain unobtrusive, too





The *Cricket '97* team gather in front of Melbourne's South Bank (left). Beam then practises falling off a beam (below)



producing, it seems that a little bit of everything is the order of the day. 'We don't have a particular speciality of expertise, not like, say, Microprose which has concentrated on simulations,' concedes Milgrom. 'But one thing that we will continue producing is non-North American sports games. They're rarely in the top ten at the end of the year, but there's always a strong market for them,' he reasons. 'Sports games are good bread-and-butter work,' Lancman affirms. 'We also believe that we have a strong understanding of adventure and strategy games, so we'll continue to produce those,' continues Milgrom, 'but we're not ruling anything out. We'll produce anything that we think is fun and playable, really.'

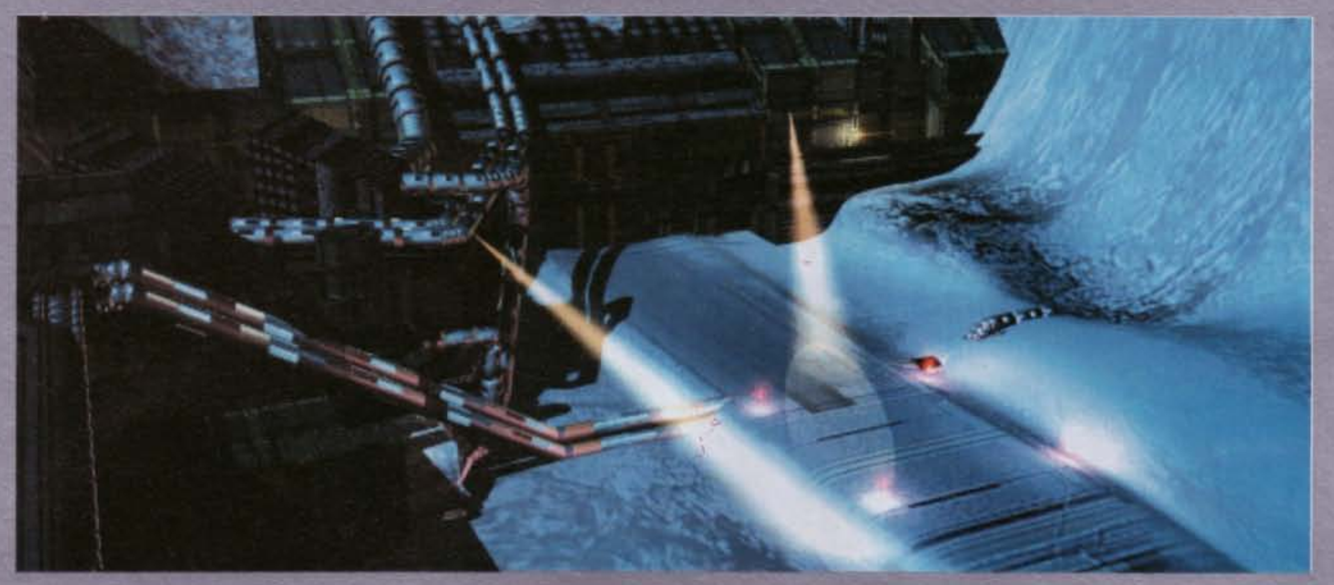
So will gamers see modern-day versions of the games that made Melbourne House such a success in the '80s? *Exploding Fist 64*, perhaps? 'I think the only value left in any of our old 8bit games is in the names of the titles, not in any of the designs or gameplay,' admits Milgrom. 'And even there it's wearing a bit thin. It's more nostalgia than anything. *Way of the Exploding Fist* is a great name, but right now we don't have a vehicle for it. We'd have to come up with a radically different game if we were to release it again in 1997.' But that doesn't mean that the underlying respect to gameplay and playability that made these old games such classics is no longer part of Melbourne House's ethos. 'We're looking at the trend towards retro gaming, sure,' says Lancman, 'and the gameplay that worked in 1980 still has relevance today. We may dress it up in a different way, but fundamentally the gaming experience of, say, *Pac-Man* is as valid today as it was 17 years ago. You now have to dress it up with 16bit colour, 24bit sound, and introduce some new bells and whistles, sure. But as a gameplay experience, it's still valid.'

The development of *Alien Earth*, Beam's current main project, due for release through PlayMates, seems to follow this philosophy. A follow-up to *Shadowrun* (1993's critically acclaimed but commercially underachieving Super NES release), *Alien Earth*'s producer, **David Giles**, hopes to 'keep the original's RPG/combat/adventure gameplay elements that people liked, but up the graphic side of it to a state-of-the-art level.' The game sets players in a universe in which humans face extinction at the hands of alien invaders. Viewed from above, players must escape the infighting of the human survivors, travel from a jungle, through wastelands, to a city where he they discover the resistance movement and eventually tackle the alien mothership itself.' Beam is especially proud of the game's visuals, and is currently employing a team of 15 people to ready the title for a late-1997 release.

And for the future? 'We're going to be doing PlayStation products, as well as PC games,' reveals Lancman. 'But it's unlikely that we'll develop for Nintendo 64 cartridges,' continues Milgrom, 'because we simply can't afford the cartridge business at the moment.' And what success does the new Melbourne House label hope to achieve? 'The videogame market is becoming increasingly dominated by seven or eight major publishers,' concedes Milgrom, 'but that doesn't mean that there isn't room for focused, independent development studios producing great content. And the industry needs that freshness and innovation – *Quake* and *Doom* would never have happened without it.' And for those still hankering for the 8bit classics of old? 'If you want to play any of these games,' suggests Lancman, 'just go to our website [www.beam.com.au] and you can play most of our old 8bit games using PC Spectrum and Commodore 64 emulators. And you know what, they're still a lot of fun.'

8bit classics *Way of the Exploding Fist* (left) and *The Hobbit*

Edge would like to thank Adam, Fred, Kirsten Beamish and all at Beam Software for their kind hospitality during its stay in Australia. And especially for one night's antics...







Metal Gear Solid is set in impressively realistic Alaskan nuclear weapons depot. These renders are indicative of the effort that has gone into what will be one of Konami's biggest games of the year. Think *Resident Evil*-meets-*Fade to Black* and you'll get some idea of what Konami is planning

Metal Gear Solid

Konami's 32bit endeavours to date may pale against its 16bit heyday, but an update of a renowned MSX title could give it the momentum to muscle its way back into the consciousness of gamers the world over

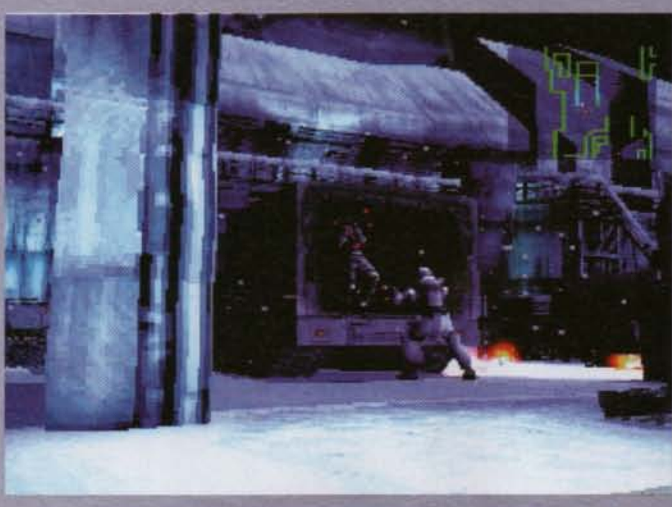


Konami's game uses realtime 3D for backgrounds as well as characters, which gives it more visual diversity. Expect stealth and tactical assasination to be overriding themes rather than full-scale annihilation

For those who can remember its track record during the golden 16bit era, Konami's 32bit efforts has so far done little to excite game players looking for polygon-based thrills. Apart from its quality PlayStation sports title *International Track and Field*, so far the company has concentrated its efforts mainly on resurrecting old titles such as *Parodius* and *Gradius*, instead of channelling its resources into innovative products more worthy of 32bit technology. And, while its latest endeavours on Sony's machine (*ISS Pro* and *Dracula X*) will undoubtedly go some way to change the current state of affairs, it may seem strange that Konami should choose an obscure 1987 MSX2 game on which to base its most ambitious 32bit concept to date. Despite being little-known among most occidental players, however, the original *Metal Gear* proved popular in Japan, going on to prompt a sequel.

Set in a 21st century Alaskan warehouse storing old nuclear weapons destined for disposal, *Metal Gear Solid*

Format:	PlayStation
Publisher:	Konami
Developer:	In-house
Release:	TBA
Origin:	Japan





Most objects in the environment are interactive. The inside of trucks, for example, can be used for hiding, although it isn't recommended (above)



A lot of emphasis is placed on the use of lighting, with particularly impressive results – the mood of the game is predominantly dark

sees the player taking the role of Solid Snake, an ex-member of FOXHOUND, once a military unit specialising in hi-tech weapons, now a renegade outfit holding control of said Alaskan building. After FOXHOUND issue an ultimatum to the American government, Snake is sent in to neutralise the terrorist unit before they make use of their newly acquired hardware. Furthermore, Snake has a personal score to settle with the terrorists' leader – the equally ludicrously named Liquid Snake.

Although *Metal Gear Solid* initially comes across as an all-out action game, a lot of strategy is involved, with the player having to rely on stealth techniques in order to survive. Being exposed by searchlights or security cameras will cause all of the enemies in the vicinity to attack simultaneously, spelling disaster for the mission, so this must be taken into account before engaging in combat. Occasionally it may be preferable to use buildings, boxes and even the inside of lorries to hide from opponents, or crawl along air ducts to get past them if they can't be terminated quickly and quietly.

The action can either be viewed via a third-person perspective (useful for locating hidden enemies) or through Snake's eyes (an option best used for close combat). It'll be possible to switch between the two at any point while roaming through the 3D environment.

As well as fighting terrorists, Snake will have to use items such as security passes in order to access restricted areas and elude infra-red beams with the aid of IR goggles. Additionally, information regarding ways to avoid traps and enemies can be obtained from certain objects, and any hostages freed will provide further advice.

Unsurprisingly, bigger and better weapons become available as the player progresses through the game. These will be based on real-life models in terms of appearance as well as the way they inflict damage on their victims. The development team has researched different American weapons and will be travelling over to the US to study the effects of the weapons first hand. Particular attention is paid to ▶



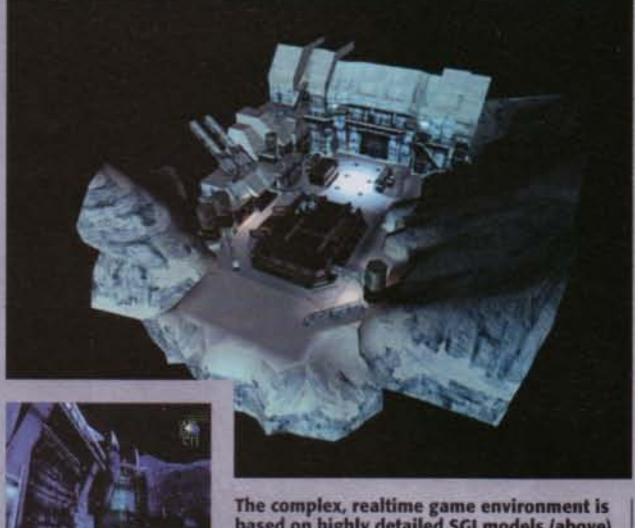


Although action sequences may occur frequently (left), the main aim of *Metal Gear Solid* is to go about your business unnoticed. To achieve this, the player will have to search the factory for air ducts, lifts, passageways and security passes to allow access to restricted areas of the depot (right)









The complex, realtime game environment is based on highly detailed SGI models (above)

making sure the characters hold the weapons realistically, while specific reloading sequences will be included for each gun together with other effects such as Snake pulling out a grenade's safety pin with his teeth before throwing it.

Since **Edge** first revealed the game (**E**40), its graphics have been substantially improved. The 3D environment is impressively realistic in its complexity and everything moves along very smoothly. The use of colour may give *Metal Gear Solid* a sombre look, but according to **Youji Shinkawa**, graphic design director, this was the intention. 'When you compare *Metal Gear* with other games it looks like it is difficult to discern the characters from the background. However, when the character is moving it's very easy to pick him out. Personally, I really like the game's dark colours and I went for a blue lighting effect which is dark but intense. It gives the whole thing a very cool atmosphere.'

Another aspect that has received a complete overhaul since the original game is character design. Snake himself has been altered substantially because he was thought to look too old in the original game. 'We did not believe this to be good for the game's commercial potential so we redrew him. He now looks younger than before,' explained Shinkawa. The

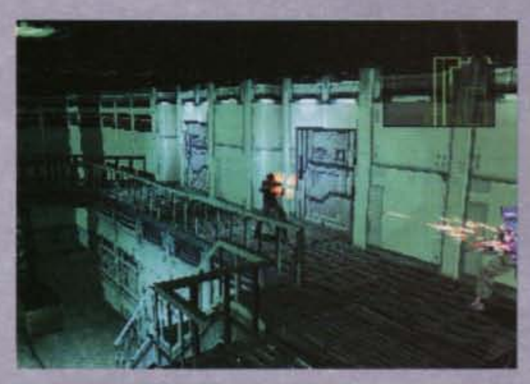








Throughout the game the player will have to switch between viewpoints to maximise his chances of survival. The first-person perspective works best during one-on-one close combat (above)











All of the locations are constructed in realtime 3D which provides a seamless transition from room to room, *Tomb Raider*-style. The player can choose whether to engage in combat (top) or to keep out of trouble. Some chance...







Huge and multiple explosions look set to play an important role in the proceedings...

customarily strong Japanese character design is also evident in the main members of the FOXHOUND team, particularly as they are the work of acclaimed manga artist Kojima, who has brought substantial individual touches to their clothes and physical features while keeping the overall dramatic and stylistic content intact

The attention to detail is impressive: footsteps are left in the snow, while smoke belches from gun barrels

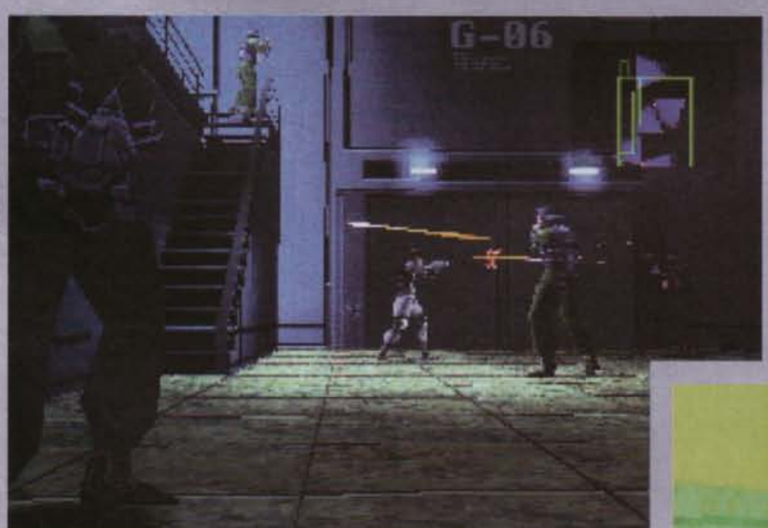
The game's level of realism is the result of painstaking work carried out by Shinkawa himself. 'My first assignment was to design *Metal Gear* mechanical models. I worked at home for about two months and made different models using plastic parts. From the models I drew the illustrations that went into the game.'

The attention to detail in the game is equally impressive: searchlights cast realistic shadows, footsteps are left embedded in the snow, and smoke belches convincingly from gun barrels. 'Our policy is to care about this level of detail. Generally, in movies, people care about the small details [but] this is not usually the case in games. For *Metal Gear* we took care of these small details. I'm always doubtful when producing a game in a traditional way so I prefer to embark upon a game in the same way as I would if a was directing a film' says Shinkawa.

Metal Gear Solid currently looks to be a stunning title. Most importantly, has the potential to elevate Konami's status the same way *Resident Evil* raised Capcom's. If this proves to be the case, PlayStation owners may soon be celebrating the return to form of another Japanese developer which was, until recently, considered out of the running.



Conceptual designs for *Metal Gear Solid* reveal a diversity of features



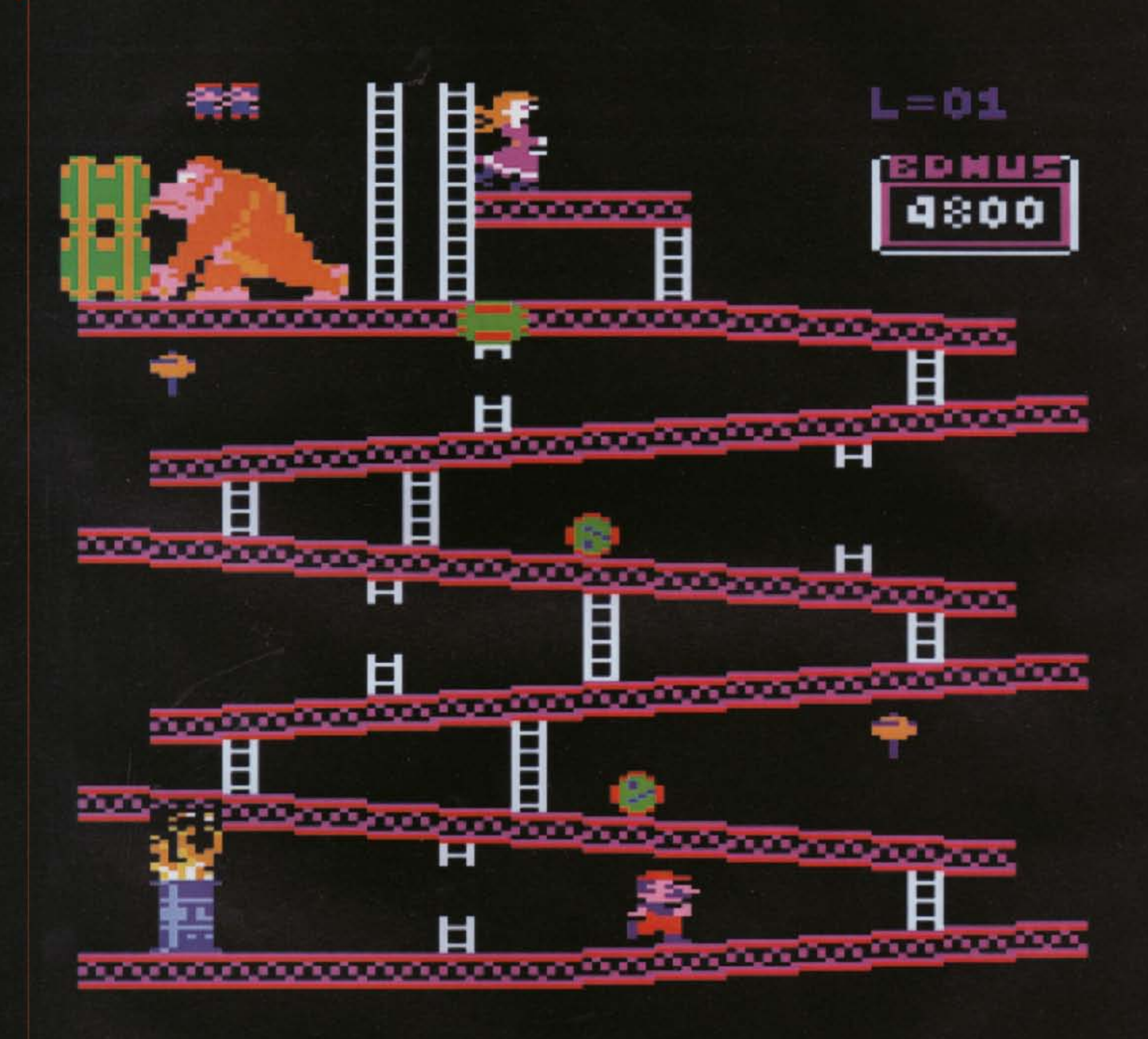




Being detected will result in all of the terrorists in the vicinity to attack simultaneously (above). To help Snake with his mission, a number of extra objects exist, such as explosives (top right) and IR goggles (right)



A Love Resurrection



The forgotten history of the videogames industry part 2

In the second part of **Edge**'s trawl through the best emulation software, the NES, Spectrum and Atari ST come under the spotlight

9. NINTENDO GAME BOY

Having sold around 50 million units worldwide, Nintendo's Game Boy, launched in 1989, needs no introduction. Unsurprisingly, it's an especially rich source of oddities and rarities.

STAR GAMES: The Japanese-only release of GB *Street Fighter II*, Capcom's excellent *Gargoyle's Quest* (a *Ghosts 'n' Goblins* relative with superbly drawn graphics), the original *WaveRace* and, bizarrely, a homemade conversion of veteran Atari VCS shoot 'em up *Yar's Revenge* are just a handful of the strange titles likely to have passed the western gamer by. As for the handheld's finest moments, the legendary Russian puzzle game *Tetris*, the brilliantly designed platformer *Super Mario Land*, and cutesy *Mario* clone *Tiny Toons* are arguably the most deserving to qualify.

EMULATORS: Marcel de Kogel (see E45) triumphs once again with his superior DOS- and *Windows*-compatible port of Marat Fayzullin's *Virtual Game Boy*, *VGB-DOS*. Full (locked) speed, full sound, a wide range of options and even a pretty GB-style background screen are here for your delectation.

WWW:
http://www.komkon.org/~dekogel/









Being tiny and having a monochrome display, the Game Boy is almost retro in itself, having to rely on the stellar gameplay of classic titles such as *Super Mario Land* (left), *Tetris* (centre right), and *Street Fighter II* (right) rather than extravagant graphical fireworks

'Progress, far from consisting in change, depends on retentiveness. Those who cannot remember the past are condemned to repeat it.'

George Santayana (1863-1952)

When the coin-op videogame was invented, it produced arcades that became full of distinct, unique games, their themes exploring every idea imaginable. The more you played them, the better you got, and the longer your game lasted. If you got good enough – and plenty of people did – you could play *Defender*, *Pac-Man* or *Asteroids* all day on a single credit. They were 'games' in the absolute sense – if you obeyed the rules perfectly, you'd never lose.

There has, however, been an almost unnoticed but completely fundamental change in the whole underlying concept of arcade games in the last ten years. Modern games ▶

10. SEGA MASTER SYSTEM/GAME GEAR

Sega's Game Gear and Master System were technically all but identical, so it's not surprising that emulator authors have killed two birds with one stone.

STAR GAMES: The hen's tooth of the Game Gear is *Galaga '91*, the least-known figure in the illustrious *Galaxian* lineage (it looks a lot like *Galaga '88/'90* on the PC Engine/Turbo Grafx). Obscure Japanese titles also abound, along with games unavailable in the UK since the first weeks of the machine's release. Master System notables include a great version of *R-Type* and *Wonder Boys* parts two and three.

EMULATORS: Again, two main combatants fight it out here. James McKay's *Massage* offers a fully functional shareware release, with many additional features available in a £10 registered version, while Marat Fayzullin's *MasterGear* is less slick (and tetchy about *Windows*), but is free and comes with a pleasant background for the GG games. Both are great, and can run almost every game available for the original systems.

WWW:
http://www.users.dircon.co.uk/~dmckay/massage.html [*Massage*]
http://www.freeflight.com/fms/MG/ [*MasterGear*]









The Game Gear was very much the poor relation of the Game Boy when it came to quantity of software. *Galaga '91* (centre), though, is a shoot 'em up with a proud ancestry, and the best handheld example. Typically, the 8bit Sega systems had a version of *Pac-Man* (right)

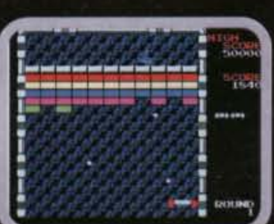
11. MSX

The failure of the MSX series of technically impressive, mutually compatible computers in the early '80s is well documented. What's less well known is just how good a machine the MSX was. It lapped up coin-op conversions (MSX *Arkanoid* is still the definitive version, more than a decade on) and its parentage gave it access to games otherwise unavailable to Western players.

STAR GAMES: *Galaga*, *Rally-X*, *Mappy*, *Parodius*, *Twinbee*, *Aleste*, *Bosconian* and *Mr Do.'s Wild Ride* all made their first official appearances on MSX. The Japanese flair for inventive, abstract original games also blossomed on the format, with games like the mind-boggling *Telebunnie*, a cute maze chaser where you controlled two independent characters simultaneously in a frantic garden-based hunt for fruit. Those still unconvinced about the pleasures of emulators should take a look at *fMSX*.

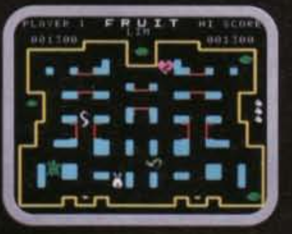
EMULATORS: There's just no stopping Dutch superstar Marcel de Kogel, as he comes up with a third definitive emulator in the shape of *fMSX-DOS*. Marcel also collects teddy bears, incidentally.

WWW:
http://www.komkon.org/~dekogel/









Most gamers should already be familiar with *Arkanoid* (left) and *Galaga* (centre right), but the entertaining *Mr Do.'s Wild Ride* (the little-known third game in the series, centre left) has only ever been seen in coin-op and MSX form. *Telebunnie* (far right) is quite simply insane

aren't really 'games' at all, strictly speaking – they're essentially low-rent fairground rides, designed to offer arcade operators a clearly defined play length, ideally around two to three minutes (freeing them from the nightmare of some gangrenous youth hogging a potentially-profitable machine all day for 10p). Players are not buying the skill challenge of the old games, but a ride, a preset experience (which also explains the massive predominance of the huge, expensive sit-down simulators which have taken over from the old stand-up cabinets in almost every modern arcade).

There are essentially two games in modern arcades – the racing game and the beat 'em up. In this context, something like a football game in fact qualifies as having the same values as a beat 'em up, as they are designed to be played competitively by two players (most gamers sneer at the oneplayer mode), one of whom will obviously lose within a couple of minutes and have to put more money in. Racing games, after the very short learning curve required to get through all the checkpoints/tracks, have an obvious predefined conclusion. In fact, the better you get at a racing game, the *shorter* your actual game gets. As your skills improve, you reach the end faster and faster. It's hardly surprising, then,

13. NES

The machine that made consoles popular again after the catastrophic Atari VCS-led crash of the early '80s, the NES remains, and is likely to always remain, the biggest-selling console in the world. Ever. The NES's game library is correspondingly huge, and loaded with timeless, glorious, seminal gems in exactly the same way that the Master System's isn't. Whatever happened to *Alex Kidd in Saturn World*, anyway?

STAR GAMES: The usual suspects here (*Mario*, *Zelda*, *Castlevania*), but also some classic coin-ops rarely seen in Europe (*Galaga*, *Mappy*, *Xevious*, etc), weird Japanese originals and conversions of coin-ops that were never released, like *Donkey Kong 3* and the legendary *Dig Dug 2*. Or check out the bizarre (and entirely politically unsound – especially when the hero has his 'energy levels' topped up in a hotel room with the lovely Cherry Grace) East German spy thriller *Golgo 13*.

EMULATORS: NES emulation is still in development, but there are a couple of highly competent emus available. Marat Fayzullin appears again with *iNES* (for *Windows* only), a classy emulator supporting sound and joysticks, but dogged by teething problems – wonky sound is a bugbear – and a steep $35 registration ▶









The most impressive aspect of the NES emulators is undoubtedly *NESticle*'s twoplayer network support, allowing gamers to enjoy dual blasting gameplay over the Net in *Contra* (left). Historians will also be interested in ultra-obscure sequels *Dig Dug 2* and *Donkey Kong 3*

12. Atari ST

The Atari ST was the leading 16bit computer for a long time, before the superior specs of the Amiga gained the upper hand. The machine overcame several flaws (poor scrolling and awful sound) and quickly built an impressive game library as developers raced gleefully into the new horizon of 16bit.

STAR GAMES: Atari played its trump card early on with conversions of *Millipede*, *Star Wars* and *BattleZone* (and later with *Super Sprint*), backed up by Williams smashes *Joust*, *Robotron* and *Moon Patrol*. Originals abound, too, with the graphically minimalist but astoundingly playable *Oids*, the Bitmap Brothers' glorious *Speedball 2* setting the pace. And who could forget *SWIV*, or the seminal *Dungeon Master*?

EMULATORS: The old school of ST emulators suffer from severe flaws. Even the most accurate have been hobbled by a fundamental inability to run games. Frederic Gidouin's *PaCifiST* literally blows the opposition out of the water; it's capable of full-speed ST emulation on anything from a top-end 486 upwards. *PaCifiST's* phenomenal performance even stretches to reading original ST disks.

WWW:
http://wwwperso.hol.fr/~gidouin/pacifist.html









The Atari ST played host to some great games in its day and for the first few years of its existence trounced the Amiga in terms of developer support. Popular titles include *Chuckie Egg* (left), *Crystal Castles* (centre left), *Rolling Thunder* (centre right) and *Millipede*

that players who were around in the '80s sometimes hanker for the old way of doing things.

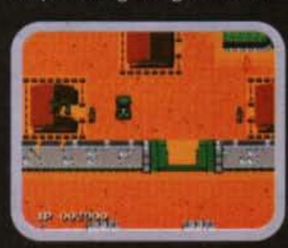
One thing that puzzles many gamers, though, is that it's taken so long for successful emulation of old games to happen. People have been expecting arcade-perfect coin-op emulation, in particular, since the advent of the Sega Master System. After all, the old coin-ops generally took up less than 50K of memory, and ran at tiny clock speeds of between 1 and 4Hz. What's so hard about doing, say, *Galaxian* properly on a 100Hz PC or a state-of-the-art console?

'Surprisingly, the PC's video hardware is only just becoming good enough to produce the sort of images that were used on the old arcade games,' explains programmer and distributor **Lee Taylor**. 'For example, the characters in *Galaxian*, like many other arcade games, used both character and sprite displays to make the screen. When the Galaxians are in convoy, they're in character RAM, but when they attack, the image is deleted from character RAM and a sprite is put in exactly the same place. Reproducing this on the PC means using a bitmapped display, emulating both character and sprite displays. So if a coin-op Galaxian appears using one write to RAM, emulating it on the PC requires something like ▶

fee. A soundless, no-joystick shareware demo is also available. Alternatively, there's a *Windows*-dedicated and very highly specced Japanese emu called *Pasofami*. Regrettably, *Pasofami* is afflicted by uncertainty about its freeware/shareware/commercial status, and by suspicion regarding a version containing a nasty virus which may, or may not, have been put out by the programmer, irate about illegal distribution.

The new champion, though, is the embarrassingly named *NESticle*, an astonishing effort from a new team called Bloodlust Software. Apparently knocked together for fun in about three weeks, *NESticle* comes in both DOS and *Windows* versions, and already boasts the best performance and compatibility of the three. It's a phenomenal piece of work, and one that was almost discontinued after a hacker stole and distributed the source code. Bloodlust have since been persuaded to picked it up again, but **Edge** suggests you obtain a copy of *NESticle* while you can.

WWW:
http://freeflight.com/fms/iNES/iNESWindows.html [*iNES*]
http://www.nfinity.com/~swhalen/node99/ [*Pasofami*]
http://www.gamepen.com/gamewire/classic/nesemu.html [*NESticle*]









European audiences were denied some of the NES's finest titles, including great coin-op conversions like Konami's *Jackal* (left), Nichibutsu's inventive *Mag Max* (centre left), and shoot 'em up grandparent *Tiger Heli* (right). Nintendo's *Pinball* (centre right) is fun, too

14. PC ENGINE

A long-standing cult machine with a small but fanatical following, it's a tragedy that neither the tiny PC Engine nor its western big brother the Turbo Grafx ever saw official European release. Technically the missing link between the Master System and the Mega Drive, the PCE's strength lay not in what were, at the time, the best specs available on a home console, but in a vast collection of sparkling games. The lack of a significant western influence in the machine's development may partly account for this.

STAR GAMES: Japanese coin-op conversions, RPGs and originals abound on the PCE, including the seminal *World Court Tennis*, several incarnations of *Bomberman*, *Galaga '88/'90* (as seen on the loading screen of *Ridge Racer Revolution*), **Edge** favourite *World Court Tennis* and what's still the best conversion of Irem's mighty *R-Type* that money can buy. Shoot 'em ups are a PCE speciality, and it boasts more great examples (*Ultimate Tiger*, *1943*, *Gradius*, *Salamander*, *Super Star Soldier*, *Gunhed*, the ridiculous *Toilet Kids* and many more) than any other console.

In fact, the PCE had probably the best ratio of good games to bad ones of any games machine, ever. The proportion of classy titles ▶







Some of Edge's all-time favourite games appeared on the PC Engine, including a great version of *Out Run* (centre left), Namco's *Ordyne* (far left), Human's *Formation Soccer*, and best of all, Hudson Soft's immaculate conversion of Irem's legendary *R-Type* (centre, right)

◀ 64 read and 64 write operations. The number can be reduced a bit by optimisation (using word or double-word read or writes as opposed to byte ones), but even then you're looking at an exponentially higher number of memory operations compared to the original hardware. Add to that the actual emulation of the original processors, and things start to get complicated fast.'

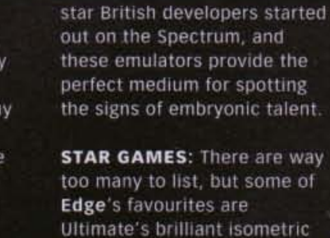
Another emulator author, **Chris Hardy** (responsible for *Windows 95* versions of *Phoenix* and *Pleiades*), notes that 'Generally, the older a computer or game is, the more tricks the hardware designer and software engineer had to do to get the required results. The Atari 2600 had very simple hardware, but it's pushed to the limit by the games programmers. Often sprite attributes were changed at near pixel level (sprite multiplexing) to get simple effects, which is a nightmare.'

So why are so many people knocking out these emulators like there's no tomorrow? 'Aside from a few problems like these with displays, I think the actual writing is quite easy. One of the most important things to remember is that it's not necessary to actually know anything about how the arcade machine works internally. As long as the programmer emulates the hardware so that the game thinks it's running on

15. SINCLAIR ZX SPECTRUM

Five years after its launch, and about five years after its final death as a financially viable platform, the Speccy is, remarkably, still having new games produced for it. The most amazing is a great conversion of *Prince of Persia*, released by members of the emulator community (but still runnable on a real Speccy) late last year, and followed fairly quickly by an impressive clone of *Super Bomberman*. The Spectrum emulator scene is possibly the liveliest one around, with a very busy and friendly newsgroup at comp.sys.sinclair. The gargantuan archive is fed by a constant stream of games, often by their original authors. This catalogue boasts something in the region of 10,000 games, including many of the most innovative and original titles ever seen on any format. It should be the first stop on the journey of anyone attempting to trace the evolution of popular game design – and, indeed, game designers. Many of today's star British developers started out on the Spectrum, and these emulators provide the perfect medium for spotting the signs of embryonic talent.

STAR GAMES: There are way too many to list, but some of **Edge**'s favourites are Ultimate's brilliant isometric arcade adventure *Knight* ▶







N64 maestro Rare cut its teeth on legendary Speccy games like *Atic Atac* (left). But less well known is the work HudsonSoft did on the machine, including *Bubble Buster* (centre right), the forerunner of *Pang*. *Bomberman* (centre left) is a new PD tribute to a Hudson classic

might yet shame Nintendo's aspirations for its much-hyped Dream Team of hand-picked developers. With PCE games, it's hard to go very far wrong.

EMULATORS: The world's first PC Engine emulator has just been released to the general public (**Edge** has been biting its tongue, sitting on a copy since January). *MagicEngine* runs practically all PCE and Turbo Grafx games beautifully, and should shortly be able to run original Turbo Duo CDs via a PC's CD-ROM drive. It's an astonishing piece of work which arrived completely out of the blue, and rivals the Vectrex emulator *DVE* as the most impressive technical achievement in the area to date. There are two shareware demo versions available (an unplayable one with full sound, and a time-limited soundless demo which doesn't run all the games), but the reasonable £20 registration fee buys you the full-featured emulator, with free updates on the way. *MagicEngine* is worth every penny, especially if it helps author David Michel fund his mooted next projects, Mega Drive and Neo Geo emulators. Take a good look at *MagicEngine* and you'll believe that they're possible.

WWW:
http://joyce.eng.yale.edu/~bt/turbo/emu/









Naxat's superb *Devil Crush* was one of the first pinball videogames to add features which couldn't be recreated on a real-life table (left). *Mr Heli* (centre left), *Gunhed* (centre right) are shooters from the PCE's expansive catalogue while *Bomberman* (right) speaks for itself

a real machine, then the game will run exactly like the real thing. You don't have to worry about what to do with the sprites, what's important is that the *emulator* knows. Then it'll do all the real work for you.'

So it looks like emulation is here to stay, despite the protests of modernists.

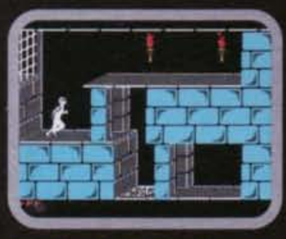
The emulation scene is, ironically, one of the most dynamic in the whole games business. Except, of course, that it's not actually part of the games business at all. With very few exceptions, emulators represent a free lunch for game players – a Web-connected PC is all you need, whether it's your own or a one situated in a Net café. Nearly all emulators are tiny, and can easily be taken away on a floppy disk – the most recent *Space Invaders* arcade emulator takes up a mind-bogglingly tiny 3K. And failing even that, many mail-order outfits sell CDs packed with emulators and thousands of the old games. While copyright on these ancient games is a substantial grey area, none of the owners of said copyrights seem to actually care very much (in most cases, at least – see 'Breaking the Law' boxout, **E**45).

And while some might think it a bit odd for a magazine like **Edge** to say so, there can be very little doubt that this is a ▶

Lore, home computer legend *Jet Set Willy*, and *Everyone's a Wally* and *Pyjamarama* from Spectrum stalwarts Mikro-Gen. The latter pair established a paradigm for humorous, densely constructed platform games. Flicking through the Spectrum's back catalogue it's clear to see how many defining moments of home computer gaming occurred at the 'dead flesh' keyboard.

EMULATORS: The Spectrum has attracted more emulators than any other machine, including some of the very best. The star of the show is *X128*, from *Massage* author James McKay. It offers full Spectrum 128 support, runs happily under DOS or *Windows*, and comes with a handy built-in menu system. Gerton Lunter's definitive *Z80* is actually even better than *X128*, boasting frame locking, better joystick support and slightly better sound, but costs £20 for the full registered version. Shareware *Z80* is severely crippled and steadfastly refuses to work with *Windows*, so it's really for the wealthy perfectionist who doesn't mind rebooting their PC with irksome frequency.

WWW:
http://www.users.dircon.co.uk/~dmckay/x128.html [*X128*]
http://www.idt-isep.ipp.pt/~rff-ribe/wspecem.html [*Z80*]









Incredibly, the animation on the Speccy version of *Prince of Persia* (left) is easily the equal of the much-feted ST/Amiga/Mega CD versions. *Lords of Midnight* (centre left), *Knight Lore* (centre right) and [game to be added]

16. COMMODORE VIC-20

The first mass-market colour home micro, and the predecessor of the C64, the VIC was not as successful as it might have been, due to being initially shockingly overpriced (£400 – another sterling bit of marketing by Commodore). By the time it became affordable, the VIC had been eclipsed by Sinclair's Spectrum. Still, it was a lot more capable than its paltry 3.5K RAM might suggest, and it did a lot to kickstart the UK games market.

STAR GAMES: Alongside several surprisingly effective Atarisoft conversions of arcade hits like *Pole Position* and *Robotron*, treasures include an accurate rendition of vector coin-op *Omega Race*, the legendary two-player 'Ben Hur' sim *Chariot Race*, and the little-known third Miner Willy (star of *Manic Miner* and *Jet Set Willy*) title, *Perils Of Willy*.

EMULATORS: Some decent efforts here, but Boris van Schooten's *PC-VIC* stands out from the crowd with a full-screen display, plus sound and joystick support and extensive software compatibility.

WWW:
http://hydra.cs.utwente.nl/~schooten/software/vic-20/ [*PC-VIC*]
http://shell.ihug.co.nz/~be/vic.htm






***Chariot Race* (left) was the *Mario Kart* of its day, offering brutal gladiatorial combat in a crowded arena. *Perils Of Willy* (centre left) was the top-hatted hero's last original outing, while *The Pit* (centre right) may represent the sole surviving memory of a long-forgotten coin-op**

◄ laudable sentiment. The games business has been keeping its history locked in the closet for far too long, condemning itself to repeat the same mistakes and learning many of the same painful lessons over and over again, much to the chagrin of the game-buying public.

The emu scene is a rich source of enlightenment for anyone with an interest in videogaming and if experimenting with a few emulations shows a developer or publisher what actually made the videogame business take off and fly in the first place, the next generation of games (and game players) can only benefit...

OTHER PLATFORMS

It's not just the PC that's been blessed with high-quality emulators – the Amiga has several good examples (including Spectrum, Amstrad, C64 and MSX) which can all be found on Aminet, while the Macintosh is especially well-served with ports of most of the major PC names (the best jumping-off point for Mac owners is The Macintosh Emulation Homepage, at: http://www.emulation.net).

In the console field, the Saturn and PlayStation both have libraries of perfect coin-op conversions – notables including *Williams' Arcade Classics*, *Gradius Deluxe Pack* and the *Namco Museum* series – bringing around 50 titles to 32bit hardware.

17. ORIC-1/ATMOS

An ill-fated attempt to compete with Sinclair's Spectrum, the Oric-1 (and its slightly more powerful 1984 sequel, the Atmos) sank without trace – except in France, where for some reason it gained a cult audience. The machines are so short on decent games that emulation is strictly for novelty value.



***Mr Wimpy*, the Oric's zenith**

STAR GAMES: A decent version of licenced *Burger Time* clone, *Mr Wimpy*, was about as good as it got for Oric fans, although versions of *Scramble* and *Space Invaders* do exist.

EMULATORS: The Oric emulator of choice is *Euphoric*, a slightly puritan but entirely accurate replication of the machine, including the all-important ZAP, PING, SHOOT and EXPLODE commands.

WWW:
http://sigstop.ensica.fr/~frances/oric/emulate_english.html

18. VECTREX

Possibly the most impressive emulation achievement because, unlike every other home game system, the Vectrex used wireframe vector graphics on a dedicated monitor.

STAR GAMES: The Vectrex was ideal for converting vector-graphics coin-ops such as *Rip-Off* and *Star Castle*, though more interesting were attempts to convert sprite games like *Pole Position* and *Scramble*. Enthusiasts are still writing new games for the Vectrex, most recently versions of Taito's *Space Invaders* and Atari's *Missile Command*.



Tank vs heli in *Armor Attack*

EMULATORS: Only one, *DVE* by Keith Wilkins. A fantastic effort with sound and joystick support, and a simulation of the Vectrex's plastic colour overlays. You'll need at least a P90 to use it, however.

WWW:
http://gator.naples.net/~saturn/vectrex/dve/index.html

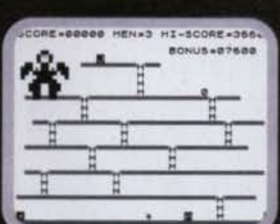
19. SINCLAIR ZX81

The missing link between *Castle Wolfenstein* and *Quake* can be found, of all places, on the near-paleolithic ZX81. Other machines had had 3D maze games before, of course, but it wasn't until the terrifying T-Rex of *3D Monster Maze* charged towards the screen before revealing the huge set of nasty incisors in its gaping maw that gamers had experienced the toe-curling rush of fear later to be induced by Barons of Hell.

STAR GAMES: Historians can also find on the ZX81 some of the greatest programming feats of all time, including a fully-working chess program written in just 700 bytes of code, games featuring hi-res graphics (which had been thought technically impossible on the machine), and the first published works of, among others, *Tempest 2000* creator and llama fetishist Jeff Minter. The hairy one's first contribution to the gaming universe? A rather dodgy *Centipede* clone.

EMULATORS: *Xtender* by Carlos Delhez is in a field of its own here. The shareware version runs excessively fast on anything more than a P100, but the registered version (£10) is fully speed-locked.

WWW:
ftp://ftp.nvg.unit.no/pub/spectrum/zx81





3D Monster Maze (left) may not look particularly scary now, but many gamers will have memories of playing it in a darkened room and jumping with fright. The '81's limited graphics capabilities meant that designers had to be especially inventive in their work (centre right)

THE NEXT GENERATION OF RETRO

These emulators are all at various stages of development, though none are yet as accomplished as the others mentioned in this article. The pace of progress is high, however, and it's worth keeping a lookout on a regular basis.

MEGA DRIVE

GenEm, by *XL-it* author Markus Gietzen, currently does a very impressive job of running several Mega Drive games (including *Sonic*), but compatibility rates are still low (only 10-20% of games run) and sound is rudimentary. Markus has recently abandoned work on *GenEm* in its current form, but it's strongly rumoured to have been bought by Sega, and Markus is thought to be continuing work for a commercial release in some form for the future.

SNES

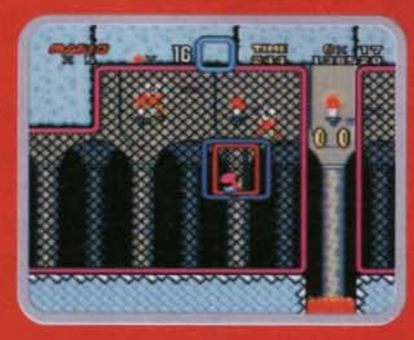
The complex design and custom chips of the SNES make it a much trickier proposition for emulator authors, and even the best emus currently available struggle to manage full speed on anything less than a P166. Currently in front of the pack is *ESNES*, a fast-developing emulator that (like all other SNES emus so far) lacks sound, but runs an impressive list of games extremely well, including such Mode 7 extravaganzas as *F-Zero*, and more conventional titles like *Super Star Wars* and *Zombies Ate My Neighbours*. This is the busiest area in emulation at the moment, so it's well worth keeping an eye on it.

AMIGA

The name to look out for here is *UAE*, a fast-developing emulator born in Unix but now being produced more or less in parallel with MS-DOS and *Windows 95* versions. Software compatibility is good, but the emulator is still quite slow (a P200 is the only realistic platform for full speed, although a P100 is just about workable with sound downgraded) and bugged. Unlike the ST, however, the Amiga's disk format is totally incompatible with the PC (good old Commodore), so to play old games you will have to rely on game websites or setting up complicated connections between a PC and a real Amiga (surely a task to keep some people busy) which seems to defeat the point somewhat.

For news on all of these and more, check Dave's Video Game Classics, a comprehensive and frequently updated page, at:
http://www.gamepen.com/gamewire/classic/
or Atmospheric Heights, at:
http://www.xs4all.nl/~delite/console.html







Sonic the Hedgehog (left) is one game that runs on *GenEm* – the first working Mega Drive emulator for the PC. Shigeru Miyamoto's *Super Mario World* (centre) is still a landmark SNES title, while Mark Coleman's detailed Amiga *Speedball* graphics still look fresh nine years on

videogame violence

THE DEBATE THAT JUST WILL NOT DIE

Ever since videogames first appeared, in both their home and arcade incarnations, they have attracted a mixture of suspicion and mistrust from uninitiated onlookers. At first, the fear was that games were turning children into antisocial automatons. Parents watched in horror as their kids mindlessly fed coins into *Pac-Man* machines and sat goggled eyed in front of TVs attached to small plastic consoles. Playing outside in the sunshine seemed to have become a thing of the past – a view regurgitated in endless books, newspaper articles and reactionary political speeches across the world.

Over the last three years, however, this general suspicion has become more focused – especially in North America where top ranking politicians and academic figures are taking an active role in the debate. Possibly influenced by the mass moral crusade against violent television and cinema, attentions have turned toward specific titles like *Doom* and *Mortal Kombat*. The chief concern is, of course, that playing violent videogames can lead children to become violent in real life.

It is a view most gamers would dismiss as nonsense, but there are many intelligent, committed individuals convinced that there may be links. Furthermore, as has already been witnessed countless times with the movie industry, the standpoints taken here are bound to have a huge effect on global opinion. So, the question is, what are the links between videogames and real life violence, and what are campaigners trying to do about them?

One of the most vocal proponents of the 'violent games beget violent behaviour' theory is Democrat senator **Joseph Lieberman**. His concerns, initially focused around violent television, began in 1993 when he noticed the programmes his youngest daughter watched were very different, in terms of content, to those viewed by her siblings a few years before. 'My chief of staff and I were talking about this,' says Lieberman, 'and he was telling me that he was having this argument with his son, who was then eight or nine, about *Mortal Kombat*. The kid wanted it, but my chief of staff didn't want to buy it for him.'

'We watched it, and I... Let's just say I was struck by the graphic nature of the violence, and by the extra dimension of the kids being involved in the violence. Kids playing these games are participants, Kids watching TV at home are observers.'

Prompted by this initial encounter with game violence, Lieberman held the first videogame hearing with fellow Democrat, Senator Herb







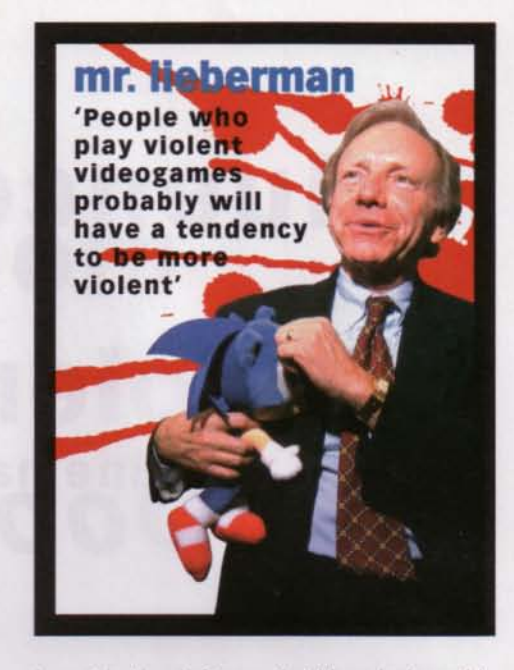


(From top) *Carmageddon*, *Virtua Cop*, *Doom* and *Mortal Kombat* have all caused controversy due to their violent content. But does this violence really affect children? Senator Lieberman is convinced

JUST WHO IS SENATOR JOSEPH LIEBERMAN?

Democrat Joe Lieberman (Connecticut), was elected to the US Senate in 1988. His main interests are fighting government waste, creating jobs and protecting the environment, but he has also become something of a scourge to youth culture over the last few years. His involvement with videogames began in 1993 when, at a Senate press conference, he spoke out against violent tiles such as *Night Trap* and *Mortal Kombat*, expressing a wish to ban violent games constitutionally. Instead, he contributed toward the setting up of regulatory body, IDSA (Interactive Digital Software Association), and a US ratings system, ERSB (Entertainment Software Rating Board), in 1994. He has also joined the moral crusade against rap music and violent films, making him very popular with right-wing American parents and very unpopular with their more open-minded progeny.





mr. lieberman

'People who play violent videogames probably will have a tendency to be more violent'

Kohl, in December 1993. Here videogames were described as 'The nightmare before Christmas' and both parents and children were warned about the violent content of certain titles. 'Our second goal was to appeal to videogame makers – just as we have appealed to television producers, to rap music producers, to movie producers – to consider the impact of games on those playing them. We'd like these people to draw their own lines, over which they will not go, as to what they will and will not include in the stuff they produce – hopefully because they are concerned about the impact on the game player's behaviour - particularly children.'

Not content to leave things in the hands of developers, however, Lieberman jumped back into the fray in 1995, orchestrating a bill to make the age rating of games compulsory in the States. His stance on the issue of digital violence remains unequivocal: 'Underneath all this is the conclusion that people who play violent videogames, particularly children who play violent videogames, probably will have a tendency to be more violent, or at least less struck by violence, in real life. For some people, violence may become more acceptable or even normal for them in day-to-day life because of their experiences with violence in videogames.'

As for proof of this argument, Lieberman is honest in his admittance that 'there isn't much' at the moment. There have been several studies made into the effects of videogames on children's behaviour patterns, but Lieberman is more concerned with the hundreds of studies made into the impact of violent movies on young audiences. As he states, 'in controlled experiments, it has been shown that when children watch violent movies or violent TV, their behaviour is affected. And there's even more anecdotal testimony from parents who tell me that they've watched their kid's behaviour be affected by playing videogames.'

The idea that children imitate what they see in movies and videogames is based on a wider concept known as the 'Social Learning' theory, which suggests that children learn primarily by copying what they see around them. Can it really be applied to videogames? And does it validate Lieberman's argument that videogame violence causes real-life violence? Other experts in the field of technology are not convinced.

Professor Henry Jenkins, director of media studies at the Massachusetts Institute of Technology (MIT) is one opponent to Lieberman's ideas. He believes that the senator, and other politicians like him, are blowing the relevance of videogame and movie violence way ▶

Influenced by the mass moral crusade against violent television and cinema, attentions have turned to *Doom*

out of proportion, to the extent that both are now being used as scapegoats for society's more pressing problems.

'I don't think he's confronting the real problems,' states Jenkins. 'Senator Lieberman and his political allies cry crocodile tears over violence in children's media and proceed to vote to cut down welfare funds for young children, encourage us to try juveniles as adults so that they're thrown into adult prisons, vote in favour of taking illegal immigrants children out of public schools and do little about the financial support "dead beat" fathers owe to their children. We have a whole culture of economic deprivation and domestic violence and these are the real problems confronting children.'

Even if videogames are accepted as an influential part of childhood development, Jenkins asserts that they can have a beneficial rather than malignant impact. Due to urban development, for example, playing safely outdoors is no longer an option for many children, so for them, videogames provide an alternative environment for recreation. As Jenkins says, 'in 1997, we can think about videogames replacing all those things that were once done in the back yard. When you play *Mario 64*, you have to leap from rock to rock, when you're playing *Tekken 2*, you're fighting it out with your fists against an opponent – and in both cases you're enacting the same kinds of things that took place in the backyard play culture of the 19th century or even the suburbs of the '50s and '60s.'

The *Tekken 2* reference is particularly relevant: 'Fist fights are hardly a new development of the 20th century,' argues Jenkins. 'We have a description of kids in the 19th century greeting each other by throwing bricks at each other's heads, hurling rocks, sticks, crab apples and pine cones. Aggression is a natural part of childhood, and yet we continually try to deny it. This is not something that's changed over the thousands of years of the history of childhood.' Which raises a key point of contention. Lieberman's argument is that videogames *cause* violence, whereas Jenkins asserts that violence is innate. The only difference now is that this violence is happening on a TV screen in the living room rather than out in the park or back garden. As a consequence, contemporary parents have the chance to witness (and therefore worry about) their children's propensity toward violence – a luxury rarely afforded them in the past.

However, Lieberman claims he understands that there *is* innate violence. The question he asks is, what do we do about it? 'I mean, do we

PARENTAL WISDOM?

Senator Lieberman places great emphasis on the number of complaints he gets from parents about violent videogames. But how reliable is this parental evidence? Professor Jenkins is sceptical: 'Many parents look at videogames and see only a series of colours, splotches, dots and moving figures. Often they can't figure out which character is being controlled by the joypad. Hence, parents often feel a sense of frustration, technophobia, and anxiety about this alien machine in their living room. And this colours their response to the issues surrounding videogames. Jenkins also believes that, for children, playing videogames is a way of carving out a separate cultural and social identity which is not under parental control. Again parents feel threatened and use 'violence' as a scapegoat for their own personal concerns.

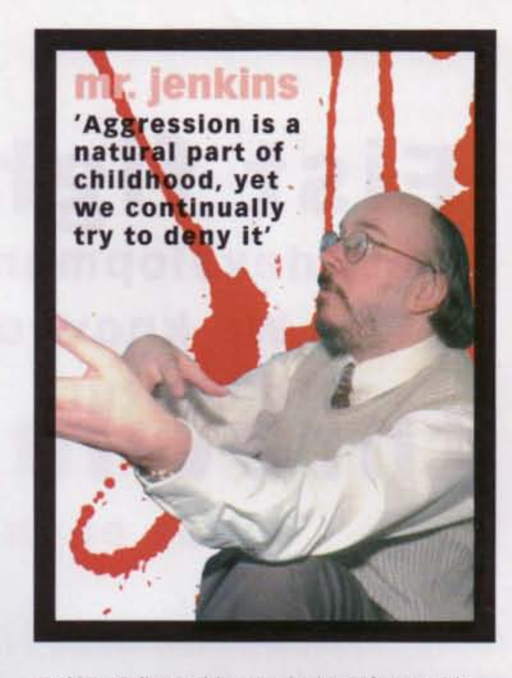








Games like *Resident Evil 2* (top), DMA's *Grand Theft Auto* (middle) and *House of the Dead* are all likely to cause concern over the next 12 months because of their violent content. Although campaigners are currently seeking to merely inform parents about game violence, is censorship going to drift on to the moral agenda?



try to control it, or do we create a climate in which it is encouraged, in which it is rewarded, in which it is made more acceptable?' Again, however, Jenkins provides a different slant on the argument: 'You've got to understand what the experience of playing a violent videogame is about. Is it about violence and aggression, or is it about empowerment?' His ideas concerning violence in videogames are closer to the 'Catharsis' theory – the theory that, through play, children are able to explore and expend their hostility safely. As he says: 'It may be that the game brings out something aggressive in the child. But it may just as readily be that the game becomes the outlet for his aggressive feelings. I've seen my own son come home after a hard day at school, completely frustrated, stomp open the front door, slam his books down, race to the Nintendo or Sega system, and play aggressively for an hour, and then come back sweet as peaches.'

At the same time, however, the argument that games can be beneficial to children – helping them to explore their aggression safely – is not entirely without its flaws. There are, for example, few players who have not thrown their joysticks across the room in frustration at not having reached some decisive point in a game – the exact opposite effect to that envisaged by Jenkins. Failure with a particular software title, then, can lead to just as many dark moods and tantrums as failure at school. This disparity is something the professor himself admits: 'I'm not here to give videogames a completely clean bill of health. I do think that there are some real questions about the nature of narratives, or game scenarios, we're given by game makers.'

These questions highlight a vital question about how far legislators are willing to go. At the moment, most public figures speaking out against software violence claim they are merely representing parents who feel they have no control of the software their children have access to. The calls are not for any kind of videogame censorship, but a rigidly enforced age-related rating system printed on every game box – as Lieberman himself states, 'we're asking for a kind of disclosure, or truth in advertising, to let people know before they buy, what's in the package.'

If this is truly all that Lieberman and his followers want, then their demands have already been met. In the States, the rating of all games is mandatory (courtesy of Lieberman), and in Europe, most software publishers are members of the trade body, ELSPA (the European Leisure Software Publishers Association), which stipulates that an age rating must be placed on ▶

'Fist fights are hardly a new development. We know of kids in the 19th century throwing bricks at each other'

the box of each game produced. In theory at least, parents now have the power to stop children buying violent games.

But this is clearly not enough for Lieberman – he also wants to push developers away from producing violent games altogether, regardless of the rating system: 'Senator Kohl, Dr Walsh [founder and executive director of the National Institute on Media and the Family] and I did this press conference last December in which Dr Walsh released a list of games that he felt were too violent. We were there, getting a little bit of attention, saying to the videogame industry, "Hey, take a look at these games here and consider whether or not you want to put stuff like this out."' With experts like Jenkins also expressing worries about general content, it is not inconceivable that outright videogame censorship will slowly wheedle its way onto the American political agenda.

Worryingly, however, this climate of controversy and concern is not limited to the States – British politicians, tabloid journalists and general guardians of national morality are also slowly waking up to the 'threat' posed by videogames. Last year saw a brief but bright flash of media controversy over game advertising, and March saw distributor JM Interactive refusing to handle SCI's PC car battle title, *Carmageddon* (see page 93), allegedly because of its violent content. Predictably, the government took great interest in the affair. Home Office minister **Tom Sackville** stated that he was 'appalled by the alleged contents of *Carmageddon*,' and went on reiterate Lieberman's fears that long-term exposure to violent videogames could well have a damaging effect on some children. Even though his comments have hinted at the possibility of a future moral scandal (envision the headlines: 'Ban This Sick Game' Cries Decent Family Man, Sackville), the government is apparently happy with the ELSPA rating system. For now.

Ultimately, the effect of videogame violence remains a grey area. Senator Lieberman may feel he has enough proof to support his claims against the phenomenon, but much scientific research into this area is flawed (see interview, opposite). It is clear, though, that this will not stop politicians and newspaper hacks, on both sides of the Atlantic, from analysing the 'evidence' and drawing their own conclusions.

One thing is for sure, if the media does turn the full weight of its attention toward the videogame industry – armed with or without evidence – the average gamer's lot will never be the same again...

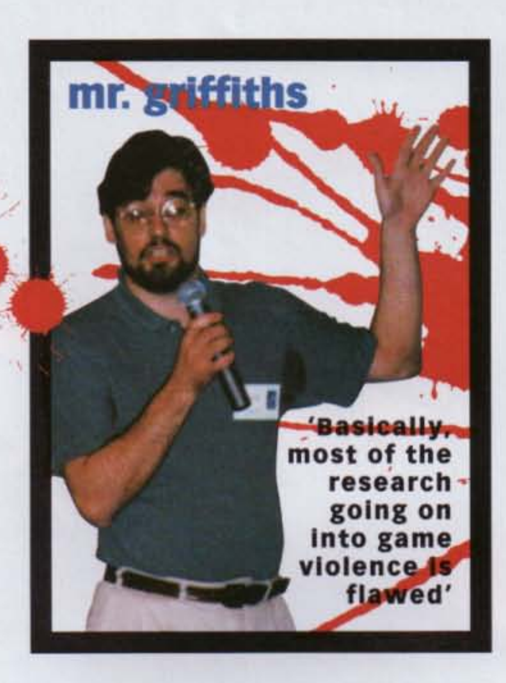


ELSPA

The European Leisure Software Publishers Association was founded in 1989 essentially to provide a central voice for the interactive leisure software industry. Almost all leisure software producers are members and the benefits of this membership include free access to ELSPA's regular market research reports, grant support and the help of ELSPA's anti-counterfeiting crime unit. ELSPA is also responsible for the Voluntary Age Rating system – a means of rating software which is endorsed by the government and was established in conjunction with the Video Standards Council. Every game released by an ELSPA affiliated producer must carry a VAR rating. Almost 80% of games evaluated using this system have been passed as suitable for all ages, and only a tiny fraction have had to be sent on to the BBFC for an official '15' or '18' age rating.

Dr Mark Griffiths

AN INTERVIEW WITH



Several scientific studies have been made into the effects of videogame violence on children, but how accurate are they? To find out, Edge spoke to Dr Mark Griffiths, senior lecturer in Psychology at Nottingham Trent University. Griffiths specialises in technological addictions and has spent three years studying videogames.

Edge: You've just written an article for *Psychologist* magazine analysing all the research literature currently available on violence in videogames. What are the conclusions made in this piece?

Mark Griffiths: Basically most of the research going on into the effects of game violence is totally flawed. Much of it is what we call 'cross sectional', which means you look at a snapshot in time of a subject's life – there's no longitudinal dimension. There are, for example, about five or six studies where the researchers get children to play either violent or non-violent videogames and then measure their free play behaviour afterwards. And what this has shown very consistently is that young children – ie those below the age of eight – do seem to imitate what they see on-screen. Now that is a very, very consistent finding – in fact every study which has carried out that kind of research has shown it.

But all that proves is that there's a short-term effect – that children copy what they've just seen on the screen. But what it doesn't show is if that carries through longitudinally – it could be that the child is affected for just a very short space of time. Also, this sort of study is very staged – it's based in a lab and researchers surround the children with loads of toy guns, so it's not surprising that their post-game play is violent.

The questionnaire is another popular form of research. Here, researchers give their subjects aggressive checklists [ie questionnaires designed to gauge how aggressive a person is] and ask them how many computer games they play and what types of game they play. Researchers then try and make connections between a person's checklist answers with their favourite game genres.

Now, the problem with this form of research is that all the data you get in is correlative – you may get the effect that little Johnny plays six hours of videogames a day and also scores highly on the aggression checklist, but that doesn't necessarily mean that the former causes the latter – there may be other intermediate factors going on like Johnny's upbringing; his socio-economic status, his biological predisposition, whatever – you can't rule those out. There is no easy answer in the whole videogame violence debate. I often get accused of sitting on the fence, but that's all I can do with the data that's been collected.

What is interesting is that the children who say they like watching violent television are also the same children who like playing violent videogames. But again you don't know the cause and effect. Many people say, 'Well, these children are more violent because they like violent activities,' but it could be that they were predisposed in some way before they started – that they were naturally attracted to television or videogame violence. That's the problem – it's the chicken or the egg thing. With cross-sectional research, you don't know what your subjects were like before. I could personally rip to pieces all the research that has been made into the effects of video game violence. Including my own.

Edge: Do you personally think that violent videogames have an effect on children?

MG: Well, it's like the TV violence debate. Nobody has done a definitive piece of research to show that TV violence has an effect one way or another, but you would imagine that if a child watches six hours of violent killing every day for ten years then, yes, it probably will have some effect – you don't need a psychologist to tell you that. I think it's the same thing with violent videogames – if a young child plays *Mortal Kombat* six hours a day every day then I would have to say, as a psychologist, yes, it probably would have some effect, but how bad that effect was remains to be seen.

Edge: So are videogames in general a bad influence on children?

MG: I think there are positive and negative effects, and what you have to ask yourself is, does the positive outweigh the negative? On the whole I think it does. The problem is, there are nine types of videogame on the market and only three of those contain violence: the beat 'em ups, shoot 'em ups and the platform blasters. The others have no kinds of aggressive metaphors in them at all, but I think a lot of poeple looking in from the outside think 90% of all games are aggressive, which is rubbish. There are a lot of high-selling games which have no aggressive content whatsoever.

Edge: Can games have any positive effects, as Professor Jenkins asserts?

MG: Games can give lots of positive effects whether it's hand-eye coordination, whether it's an increase in self-esteem, whether it's fostering challenge, an increase in curiosity, increase in cognitive skills, etc. However, this can all be achieved in games without any aggressive content – so why not create more educational games?

Star Fox 64











Nintendo has used every trick at the N64's disposal to create some splendid spot effects (top), while the imaginative bosses are no less impressive (right)



***Star Fox 64* retails for just £45 in Japan – that's including a Jolt Pack**

When it appeared back in 1993, *Star Fox* revolutionised the console world – until then, polygon shoot 'em ups had only been associated with PCs. Given that Nintendo could not hope to cause the same impact with its successor – 3D games now being de rigueur across all platforms – it was faced with the task of producing a game that would not have the luxury of technological originality to fall back on. In the face of this, Nintendo has triumphed – *Star Fox 64* is magnificent.

As in the original, the evil Emperor Andross has attacked the Lylat star system which incorporates Corneria, Fox's home planet. And once again, it's up to Colonel Pepper and his forces to save the galaxy.

This time, rather than present the player with a choice of three set routes through the Lylat system, certain levels allow progression to a harder or easier mission depending on the player's performance. In the opening level, saving Falco from an attack by a trio of enemy ships will see Fox flying through a waterfall and meeting a different end-of-level boss before gaining access to the harder route through the system.

Indeed, the player will be called upon to bail out Fox's companions a number of times as they haven't improved their combat skills since their last appearance – annoyingly, they possess a gift for getting chased by enemy fighters and asking Fox for help. However, rather than plummeting towards the ground in a ball of fire when their energy bar reaches zero, never to be seen again, Peppy, Slippy, and Falco now abstain from one mission while their craft is repaired before returning for more attention seeking. The companions do perform one vital function, though – providing Fox with vital on-screen information. Lose Peppy for one mission, for example, and the end-of-level boss's energy bar will be absent, leaving the player to guess the level of its destruction.

Compared with the SNES title, *Starfox 64* represents a major (and obvious) graphical extravaganza. Texture mapping and anti aliasing – rapidly becoming a N64 trademark – is in effect everywhere, providing far more detail than its predecessor. A higher polygon count also ensures a more intricate craft and level construction. The bosses display the usual Japanese strength in character design and are graphically astonishing, the best example being, predictably, Andross himself. Also particularly splendid is the water the player







Of the two new modes of transport, the tank is easily the winner with better firepower and a very impressive side-rolling manoeuvre similar to the Arwing's enemy fire deflection move (above)



The use of colour in the game is extravagant with each level displaying a vast array of hues (above)

occasionally flies over. While it doesn't achieve the level of realism seen in *WaveRace*, it does boast an excellent reflection effect, and firing a laser bolt into it results in a very satisfying splash. Furthermore, skimming the surface causes a pleasing water spray to emanate from the wing tips of Fox's craft, while a similar effect can be seen when the player uses the afterburners, airstreams rippling from the extremities of both flying appendages.

Apart from the obvious graphical enhancements, the initial missions are similar in style to the original game – the same planet surfaces with collapsing buildings to avoid and arches to fly under, and space sequences with a frightening level of debris to put a stop to Fox's progress. However, fly further into the game and the familiarity ceases. The first obvious difference is the inclusion of arena-style levels where the player can fly freely while engaging in frantic dogfights against Andross's ships. Possibly the most impressive example of this is a mission involving a gigantic alien mothership suspiciously similar to those seen in 'Independence Day', with seemingly hundreds of ships battling it out underneath it against a glorious sunset backdrop. The Arwing's new ability to loop the loop proves particularly useful during these stages, ensuring enemy ships on the player's tail suddenly find themselves in front of Fox's laser cannons.

The Arwing's new ability to loop the loop proves particularly useful, as enemy ships on the player's tail suddenly find themselves on the business end of Fox's laser cannons

Other significant changes are the inclusion of tank ▶







Visually, few of the levels can match this psychedelic bonus stage (above)



Various routes through the Lylat system are possible depending on the player's performance. Although initial missions are similar to Nintendo's SNES *Star Fox*, later stages offer huge variety while maintaining the game's overall standard. In true Nintendo fashion, expect one or two surprises

◀ and submarine missions. The Landmaster tank sections are a great addition to the game, providing variety of a very high quality. The way the Landmaster rolls to avoid enemy fire or takes off to clear obstructions or reach power-ups is a joy to watch, as is the way it leaves track marks and throws up dirt as it traverses the level. On the other hand, the submarine section is disappointing. Its sluggish speed

The battle mode adds to an already accomplished package. Tremendous fun can be gleaned from shooting other players and weaving frantically to dodge missile locks

and rubbery controls, though admirably realistic, cause a jarring change of pace – it just doesn't integrate neatly into a game that, elsewhere, brazenly flaunts its frenzied nature.

The inclusion of a fourplayer battle mode simply adds to an already accomplished package. Despite a slight loss of graphical detail – necessary to keep the frame rate as high as possible – tremendous fun can be gleaned from attempting to shoot down fellow players and weaving between buildings in a frantic attempt to break off a missile lock.

In Japan the game is sold with the Jolt Pack, a bizarre gadget that complements the on-screen action by vibrating vigorously every time Fox's Arwing is hit by enemy fire or crashes into obstacles. Regrettably, European gamers will have to obtain this slice of retro gadgetry (whose lineage can be traced back to the halcyon days of *Afterburner*) separately.

It's difficult to fault *Star Fox 64*. A harder difficulty setting would have been desirable – most players should see the three routes' end sequences after a few days' play – but the desire remains to return and complete the game with higher success rates, etc.

Shigeru Miyamoto can consider this another gilt-edged addition to his glittering portfolio. ■

Edge rating:

Nine out of ten





Each level offers a different twist, introducing new enemies, with new methods of attacking the player









Format: **Nintendo 64**	Publisher: **Nintendo**	
Developer: **In-house**	Price: **¥8,700 (£45)**	Release: **Out now (Japan)**

Tobal 2



This secret *Tekken*ly first-person perspective exploits the clarity of the pure, if ingenuous, styling – a far cry from *Punch-Out*...

Superficial diagnosis might cynically consign *Tobal 2* to the burgeoning dossier of late-effort sequels. Sure enough, it exhibits all the major symptoms – a re-jigged game engine, longevity-boosting new options, slap-patch responses to consumer complaints – that commonly imply the original was never properly finished before its commercial release. Playstation owners won't need reminding of this endemic disease.

Risking the twang of stretched metaphor, however, a thorough examination reveals otherwise. For all its obvious similarities, *Tobal 2* demonstrates a cautious but genuine progression, paradoxically, through the appropriation of many 'traditional' features. Dizzies have returned, stunning the fighter who suffers intense successive hits or a timely knock-out punch. Grappling is upgraded to include new throws and pinning moves. And – surprisingly, for a 3D affair – characters can now launch fireballs and charge up arcing projectiles. Pyrotechnics aren't on the *Dragonball* scale but they'll please the Toriyama fans.

The most important advance is in the interface. *Tobal 2* is one of the first games to employ Sony's new analogue controller and, although the difference seems subtle at first, it proves thoroughly worthwhile. By transferring sensitive motion control to the comfortable concave thumb-stick, sidesteps and dashes no longer require clumsy double-taps. The result is a greater degree of freedom within the arena, cleverly balanced to ensure that you're never left struggling to face your opponent. The ease of feinting and weaving grants a more fluid, organic feel to combat, and the extra moves made possible when circling an opponent enhance the tactical dimension. Your character may even stumble when attempting an unfeasible retreat. With so many beat-'em-ups still relying on 'block, attack, block, attack' mechanics and a hackneyed side-on formula that's no more 3D than *Fatal Fury*, Dream Factory's exploitation of the available technology marks an admirable step forward.

Two new characters have been added to the roster. Leotarded spin kicker Chaco-Yutani is at least human (never a certainty in *Tobal*), if a little tired. The multi-talented Doctor V holds down the unlikely career combination of research scientist and boxing champ, his exceptional playability brushing aside any suggestions of a DeeJay imitation.

Tobal 2 retains that distinctive super-defined sharpness by employing a hi-res mode usually reserved for digitised stills and suchlike. The extensive use of Gouraud shading requires fewer polygons and simpler textures, enabling some impressively seamless animation in which blocked punches are truly seen to be stopped or deflected by authentic fighting poses. Despite this clarity of movement, there's still something ineffably tame about the dull, hollow contacts that makes *Tobal* feel less intense than any *VF* or *Tekken* conflict. Perhaps the bright primary colours and the smoothly doll-like representations of







***Tobal 2* players should never stop moving: sidestepping at speed with the analogue controller is the solid method of dodging projectiles, leaving your recovering opponent prone to a turning kick**









Curious to note that the unusual graphic techniques used for *Tobal 2* positively reinforce Toriyama's squeaky-clean character designs

Akira Toriyama's character designs aren't expressive enough, or even human enough, to elicit the same empathy you experience when *Tekken 2*'s pugilists take a fierce crack on the jaw. Perhaps it's the style of the game that makes every bout feel like a point-scoring friendly rather than a visceral deathmatch. Even the built-in 'jolt' mechanisms of Sony's analogue pad fail to raise the tension.

Both the RPG-inspired Quest Mode and the Training Mode have been improved, though not enough in the case of the former to make it any more than a curious diversion. It's worth reiterating that it takes two human opponents to truly appreciate what this type of game can offer, because the solo modes remain rather unengaging regardless of difficulty setting. It's not unusual to see the CPU suddenly executing immense juggle combos, or winning every grappling tussle in the way that only a computer opponent can. There's an unpleasant degree of cheesiness in its habit of bullying fallen players too, though this is due in part to some slackness in the rules for rising attacks.

The fundamental problem dogging the *Tobal* series is that a sturdy (or even ambitious) game design isn't enough to guarantee widespread appeal. Dream Factory's contextual invention lacks grit to the extent that some players, particularly in the West, will regard the game's colourful alien milieu as juvenile. It's doubtful that even *Tekken 2* would have enjoyed its success had it possessed bunny bosses or an alien wrestler who could double for Foghorn Leghorn.

Curiously enough, *Tobal 2*'s scenario presents martial arts as the agreeable pastime of dedicated outsiders engaged in a common pursuit, making no small parallel with the game's likely audience. Those prepared to look beneath the veneer and relish it purely for the depths of its combat system will find a rewarding level of complexity that easily surpasses *Soul Edge* and its clones. Beyond the intellectual and reflexive challenge, however, the matter of personal taste will keep opinions firmly divided.

Edge rating:

Eight out of ten











Complex controls still trouble the dungeon-crawling Quest mode



They enhanced the first game, but those simple wrestling struggles to win a throw now seem shallow compared to *Tobal 2*'s various new combat options

Format: **PlayStation**	Publisher: **Square Soft**	
Developer: **Dream Factory**	Price: **¥5,800 (£30)**	Release: **Out now (Japan)**

Dungeon Keeper







A bile demon's vile bowel attack (above). Sparks fly as players launch a volley of spells at one another (right)

The copyright notice on **Edge**'s press copy of *Dungeon Keeper* contains a humorous question mark after the '1997' date stamp, fitting given that the game has suffered the mother of all slippages. What was to be a neat little extension of the god sim genre almost three years ago has become not only a labour of love for Bullfrog leader Peter Molyneux, but also his swansong, as he prepares to strike out under a new development banner. As parting shots go, few get better than this.

The original concept has been retained, with the player finally getting to sit on the other side of the fence in a fantasy battle between good and evil. The threat in *Dungeon Keeper* comes in the form of hapless do-gooders intent on sacking the player's carefully crafted dungeon, slaying its monsters and shamelessly making off with the gold. In order to thwart such pesky kids, keepers must fashion the sort of dungeon that will attract exactly the wrong element, luring all manner of monsters into employment, to help expand and fortify the underground lair and build up a powerful army to defeat the myriad invaders. It's not just heroes that pose a threat; other keepers, be they computer-controlled or other humans in multi-player mode, are also in it for the money.

Dungeon Keeper is a strange brew, one that can almost be regarded as a blend of the standard god sim with the realtime wargame elements of *Command & Conquer*. Even the way rooms are constructed for various purposes – the storing of treasure, monster lairs, libraries, torture chambers, even temples – echoes the freeform approach to architecture used in Bullfrog's *Theme Hospital* or even Maxis' *Sim City*. But really, this is a singular creation that almost defies pigeon-holing, such is the breadth of vision governing the whole thing. Molyneux believes it to be his best, most ambitious creation yet, and he's probably right.

Which makes explaining the playing process somewhat tricky. Essentially it's based around the age-old expansion-versus-resources balancing act, as the player sends out ever-willing imps to dig out passageways and rooms. Nearby seams of gold must be mined to pay for such work, which then requires a treasure room in which to store it until pay day. The dungeon-in-the-making then requires monsters to nurture and lairs to be built in which to house them. A food-providing hatchery must then follow, and it's not long before keepers are directing the construction of training rooms to build up monster experience levels, research rooms to come up with useful inventions like doors and traps, and prisons in which to place disobedient monsters, or heroes with the potential for corruption – all of which further saps those precious gold reserves. Even torture chambers can be



The graveyard spawns vampires when enough enemy bodies have been buried. Clearing unsightly dead bodies from the path of your pack of monsters also boosts their morale



There are 20 different levels to play through, featuring a broad variety of architectural styles. Hidden levels, end-game levels and five comprehensive tutorial sections are also included in the *Dungeon Keeper* package





The aftermath of a battle, as seen through the eyes of a monster (top). Fodder in the hatchery (above)

constructed, while later levels introduce graveyards in which to house undead and temples where sacrifices can trigger hidden effects. Such surprise features are integral to the *Dungeon Keeper* experience.

As if the process of dungeon building wasn't complex enough, there's also the small matter of the keeper's minions, who all wander through the dungeon under their own steam, eating, sleeping, training, and taking on appropriate tasks in places such as the workshop or research room. Each creature type exhibits different characteristics too, showing animosities toward other races and even differing attitudes toward the keeper. Recalcitrant subordinates can be given a smack with a simple mouse-click. But while such discipline works well on imps, who would otherwise go mining for gold rather than reinforcing walls or laying floors, the likes of sorcerers and bile demons demand respect. Picking up gold from the treasure room and lavishing it on such powerful monsters is often a far better way to get results.

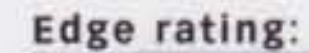
Such ambitious scale could so easily have buried *Dungeon Keeper* but for a control system that's been refined to an unbeatable level. Icons are – for once – self-explanatory (though keyboard shortcuts are also available) and control is context-sensitive. On-screen query modes, label explanations, level-specific instructions and a substantial quota of tutorial levels all ensure that this most ambitious of point-and-click games can be played without referring to the weighty manual. Even the AI routines are accomplished enough to make the actions of the monsters seem perfectly natural – a genuine accomplishment given the number of creatures running around, and the vast amount of possible actions at any one time.

While the game goes for broke with the fantasy role-playing theme, there's a playfulness here that ensures talk of spells, spooky monsters and experience levels is never taken that seriously. Rather it appropriates RPG clichés because they offer the best opportunities for on-screen pyrotechnics and wish fulfilment. After all, who wouldn't relish the idea of controlling a horde of undead, or viewing the world through the eyes of a giant spider or powerful demon? And with the opportunity to take direct *Doom*-style first-person control of creatures using a possession spell, it's perfectly possible to do just that.

It's arguable that the combination of a polygonal 3D gameworld and sprite-based creatures betrays the game idea's age. However, it's hard to believe that even the most powerful PC could show the ant-like activities of the dungeon any other way. And thanks to some excellent lighting, shadowing and translucency routines, as well as appropriate lensing effects when using the possession viewpoint (dragons have a view clouded by smoke, while giant flies have a suitably multi-faceted view of the world), such criticisms become irrelevant; *Dungeon Keeper* is easily the most atmosphere-drenched and minutely detailed god sim to date. And once the ultra-challenging higher levels and manic multiplayer tangles work their magic, it becomes apparent that it's also the best.

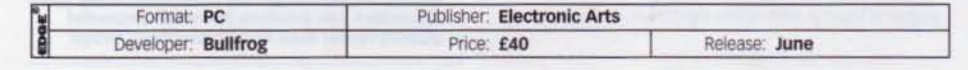
A genuine milestone, *Dungeon Keeper* ups the stakes for the point-and-click genre in terms of presentation, imagination and ambition. Some may find its depth off-putting, but it mixes styles more effectively than any other game in its field and offers a tight, immaculately paced experience. The challenge lies not in fighting needless complexity, but in learning how everything acts, reacts and interacts. Molyneux has created a masterpiece that again epitomises everything that's good about computer rather than console gaming.

How he will top this is anybody's guess. **Edge** just hopes gamers don't have to wait another three years to find out.



Edge rating:

Nine out of ten



Format: **PC**	Publisher: **Electronic Arts**	
Developer: **Bullfrog**	Price: **£40**	Release: **June**



Correct, studied positioning is critical to the efficency of special rooms

Shining the Holy Ark



Upgrading can be a weary task with the limited number of weapons on offer at the shop in each village









Whether *Shining the Holy Ark* is paying homage to its roots or is merely unsure of the quality of its graphics is open to debate, but it still feels the need to describe every attack in weak pidgin English

Although the most popular instalments of Sega's *Shining* series were always *Shining Force I* and *II* on the Mega Drive, there seems to be an eagerness to take the property in an altogether different direction with its Saturn incarnations. Not always, it would seem, a wise move. *Shining Wisdom* was a rather lacklustre *Zelda* clone and now *Shining the Holy Ark* seems to be nothing more than an update of the very first game in the series, *Shining in the Darkness* – itself a clone of that venerable classic, *Dungeon Master*.

Nevertheless, everything starts out quite promisingly. Use of the new Saturn libraries has gone a long way towards eliminating the usual texture pixelation problems, and the 3D environment moves as smoothly as would be hoped. However, this seems to be at the expense of giving the player total freedom of movement. Restricted to following preset patterns, it may be fine for a tunnel one-character wide but feels somewhat akin to travelling on a chessboard of interconnected rails when negotiating an irregularly spaced village. Sadly, there's also a noticeable drop in the frame rate when the graphics engine is trying to handle a whole town at once.

All the characters the player meets are well prerendered, if a little mannequin-like. The plot features a character possessed by evil demons and a gaggle of bizarre alien spirits right from the outset, but





Battles do get marginally more interesting when characters can summon powerful elemental attacks rather than simply whacking things



Compared to the likes of Square's prerendered intros, *Holy Ark*'s effort is still in the beginners' league





The most spectacular moments in *Shining the Holy Ark* occur when negotiating the full-3D villages and towns. After the repetitiveness of the main bulk of the game you may find yourself wandering around long after you've spoken to everyone and gleaned every single piece of information

it soon degenerates into the most standard Japanese RPG quest. If towns displayed in glorious 3D offer tantalising glimpses of a graphical tour de force, the reality is somewhat less satisfying. No sooner have you reached the outskirts of a town (where, as usual, everyone seems to have only one thing to say no matter how many times you probe them for information) than the path leads you into yet another drab underground dungeon. The seemingly endless array of identikit brown passageways and tombs wears thin before you get to the first save point (which is itself a good hour of play down the line).

As if to confirm this by-the-numbers approach, there are also the usual random battle encounters. If they don't grind you down, the lack of imagination in the fight mechanics will. Apart from the totally pointless automatic fight feature, where you can let the CPU control the characters, thereby rendering a good 60% of the gameplay redundant, no thought at all seems to have been paid to the weapons and magic system. You might think you're being clever by combating an ice demon with a fire spell, but you might as well hack at it with a knife for all the difference it makes. Magic attacks seem to exist merely to show off another pretty graphical effect.

Likewise, the most strategy you'll ever need to exercise in upgrading and equipping your armour and weapons is a simple matter of choosing the most expensive thing in each shop. The shopkeepers even offer to buy your old items from you, signifying that even if you don't part with them you won't find any use for them any more. The appearance of a blacksmith who offers to forge you a weapon from ore you can find in the catacombs, meanwhile, seems something of an afterthought since actually finding any of the precious metal is an irksome task in itself.

You might think you're being clever by combating an ice demon with a fire spell, but you might as well hack at it with a knife for all the difference it makes

Taken as a pure dungeon hack'n'slash affair, *Shining the Holy Ark* is slick and playable, if totally predictable. Console owners who fondly remember ASCII's 16bit *Wizardry* games and have a penchant for searching out every last treasure chest in warren-like mazes will feel comfortable with its challenge. For the rest, the prospect of Saturn *Shining Force III* is infinitely more appealing.

Edge rating:

Six out of ten







Battles can seem frustratingly hard at times, with even single opponents wiping out the whole team





While not up to the standards of *FFVII*, the magic effects in *Holy Ark* perform their task quite adequately



The pleasantly drawn, if not particularly huge, game world

Format: **Saturn**	Publisher: **Sega**	
Developer: **In-house**	Price: **£45**	Release: **Out now**

ISS Pro





ISS Pro has a wealth of national teams from across the globe. Although Konami hasn't used real names, famous players can be recognised by their kits and, moreover, individual haircuts







The replay feature can be juggled after a goal, allowing the strike to be viewed from virtually any angle

Despite the relative success of some of the early PlayStation soccer titles, Sony's console has never enjoyed the football simulation that its stature deserves.

The development in optical motion-capture technology has forced a sea change in the way that football games are made and, keen to utilise the new methods available, software companies have spent the majority of their time and energy perfecting realistic movement and animation in ensuring that visual quality is second to none. Playability has been neglected at the expense of graphical realism, however, and many gamers remain unconvinced that the inclusion of 3D motion-captured visuals makes for successful football games.

For all its fluidity of movement, *Actua Soccer* is an overrated title, while *Adidas Power Soccer* is too gimmicky. The Saturn has *World Wide Soccer '97*, a more than competent title, but only *J-League Perfect Striker* (aka *ISS64*) can comfortably be described as exceptional with its versatile and elaborate gameplay.

Konami, producer of the aforementioned *J-League* and probably the most prolific performer on the football pitch, has once again demonstrated that stunning 3D visuals *can* be combined with refined gameplay, this time in the 32bit field. *ISS Pro* is essentially a game that has learned its skills from *ISS Deluxe* on the SNES and then been given a sparkling new strip and grand stadium to play in.

The game first impresses with the attention to detail applied to the players' kits; the red chequerboard strip of the Croatians, the Adidas-style 'three stripes' on the shirts of the Germans and Spanish – it's immediately clear that this is a game tailored not only for the hardcore gamer, but the football fanatic, too. And even though Konami hasn't paid for the license to use the names of real players, the observant will soon pick out international stars such as Ravanelli, Klinsmann, Valderrama and Bergkamp by their hairdos.

As in Konami's oft-forgotten PlayStation football sim *Goal Storm*, *ISS Pro* players appear angular, though considerably more detailed and rounded than their earlier counterparts. First impressions are that the action is somewhat slow-paced, sluggish almost.





When a long ball heads toward a player, the square button can be used to knock a short header back to a teammate. Subtle gameplay features such as this ensure *ISS Pro*'s distinction in an overcrowded market







***ISSP*'s animation is the best of any PlayStation football game; players even somersault after scoring**





Although there are few goals scored from outside the 18-yard area, players can still perform spectacular overhead kicks and headers. Close-ups display the attention to detail applied to the varied football strips

Once accustomed to the pace, though, *ISS Pro* begins to show just how much it has to offer. The four basic buttons are used for pass-to-feet, long pass, through pass and shoot, while the top-right shoulder button can be utilised to give a player an extra boost of pace. With a few minutes of practice the basics can be mastered, but there are so many subtle touches that it can take a couple of weeks before the tactical nuances are discovered. The through-ball pass plays the ball into space just in front of an on-rushing teammate which enables you to catch a defender on his heels (so to speak), yet early attempts usually find the gamer giving the ball straight to the opposition. But, as is true of all the best sports simulations, the more you play *ISS Pro*, the better it gets.

On the formation screen, each of the players is represented with a Pac-Man-style face in five states of happiness. Red and grinning, the player is in good health; grey and miserable, best to drop him to the bench. A strategy option has been implemented to offer the opportunity to play the offside trap, all-out defence and attack or counter attacking approaches, all of which can be implemented at any point in the game by depressing the Select button. (When battling a human opponent, it's with great satisfaction that your defenders are pushed forward to catch attackers in an offside position.)

Strangely, the least spectacular aspect of the game is often scoring, which mostly comes about following one-on-ones with goalkeepers. Headers and bicycle kicks are executable, but notching up a goal from outside the 18-yard area is rare – and usually a case of the goalkeeper fumbling a shot. Mostly, though, the goalkeepers are solid, and strikes come from patient, well-thought-out passing movements.

Options include four stadiums, four pitch views and three oneplayer difficulty levels, and commentary accompanies the on-screen action (albeit poorly – when is a developer going to produce a game with a commentator who doesn't spout the ridiculous and repeat the same remarks with alarming regularity?).

Referees are realistic, in as much as they're dreadfully inconsistent. But you can forgive *ISS Pro* most things, simply because the animation and 3D visuals are excellent and the gameplay so refined.

This is, without a shadow of a doubt, the best PlayStation football game available.

Edge rating:

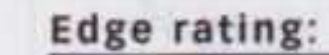
Nine out of ten





The only other game that can match *ISS Pro*'s visual appeal is N64 title *ISS64*, another effort from Konami

Format: **PlayStation**	Publisher: **Konami**	
Developer: **In-house**	Price: **£45**	Release: **Out now**



Vandal Hearts







Diego's the joker of the group (top). The various spells are a highlight of the game (middle and bottom)





***Vandal Hearts*' attention to detail is typical of Japanese games – on a moving train, a spurt of blood that usually greets a death is blown away in the wind (left). Salamander (right) is a rather spectacular spell**

Along with Square Soft's *Final Fantasy VII*, *Vandal Hearts* is in the vanguard of a new wave of Japanese-bred RPGs. Konami's example is roleplaying with a truly Nipponese feel and owes more to battling miniatures of the Warhammer variety than it does to Dungeons & Dragons; in computer game terms, the *X-COM* series is its closest relative in the west.

What this means is that the action is presented in a series of one-off, turn-based battles on an isometric 3D terrain. First you move your characters and attack, then the computer does the same. The plot is strictly linear, with the two apparent choices presented to you in the game in fact having no significance whatsoever.

The player assumes the role of Ash Lambert, an officer in the Ishtarian security forces who stumbles across a plot that threatens to overthrow the world. The only way to stop it is to win every one of the set-piece battles. In these you command Ash and his ever-growing squad of companions, all taken from the classical fantasy mould: wizards, thieves and archers abound. And, as you'd expect from a roleplaying game, success brings financial reward and advancement in level.

So far, so ordinary. But there are two things that lift *Vandal Hearts* well clear of its competition. First, although the plot is linear, it has one of the best-structured and most rewarding plots **Edge** has ever come across. In between each battle there are little sequences where the main characters talk and debate. There are flashbacks, cuts to the villain's castle and half-remembered dreams. Every ploy of Japanese cinema (down to borrowing heavily from Shakespeare) is used to bring the game and its characters to life. And cunningly, this wonderful plot is also woven into the gameplay itself with variable victory conditions for each battle reflecting the advancement of the storyline (One battle, for example, has you rescuing a comrade from a fiery lava pit. You have eight turns to figure out how to get to her or she perishes).

Second, while initially a disappointing graphical achievement, *Vandal Hearts*' visuals escalate in stature as the game progresses. Some effects, such as the temple that rises out of the water or the train that hurtles along behind a battle, concern backgrounds, but the best effects are saved for spells. Even early on these are tremendous (columns of arcane symbols rise and fly around the spell-casting character, for example), but as the power of the spellcasters increases, so does the visual potency of their spells, the best probably being the Salamander, a summoned fiery dragon which flies around the screen turning everything blood red before smiting foes.

Vandal Hearts obviously does not have the graphical flair evident in Square's prerendered excesses, and the stop-go nature of its gameplay will be offputting for some, but those willing to invest the time and effort will get a lot out of what is an expertly crafted title.



Though it's not evident in this shot, the bridge is collapsing behind the hardy band (above). The realtime 3D engine works efficiently (left)

Edge rating:

Eight out of ten

Format: **PlayStation**	Publisher: **Konami**	
Developer: **In-house**	Price: **£45**	Release: **Out now**

Outlaws







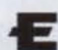
The superb cut-scenes can't save *Outlaws* from itself

LucasArts hasn't sullied its reputation with *Outlaws*, but it has, not for the first time, shown that it's not infallible. The other most recent examples of this, *Dark Forces* and *Afterlife*, proved that perhaps the company that made its name with graphic adventures *Monkey Island*, *Fate of Atlantis* and space shoot 'em up *X-Wing*, should stick to what it's good at.

Outlaws scores points for its original concept (*Doom* clone in the wild west) and some superbly atmospheric sound reminiscent of the very best spaghetti western movies. It also bears the familiar Lucas trademark of outstanding animation sequences pioneered in *Full Throttle*, dropped in to advance the plot. Unfortunately, *Outlaws* barely needs one, as all that's required of the player is to repeat the familiar kill/key tactics pioneered by *Doom*, and then done to death ever since.

The disappointing 3D engine looks like shareware compared with the likes of *Quake*, and is clunky, even on a high-spec PC, the levels it builds being curiously bare. Combat, which sadly dominates the gameplay, veers unevenly from semi-interesting sharp-shooting and blasting, to annoying enemy ambushes that happen with no warning, and leave the player staggering around looking for health after only the briefest encounter.

Outlaws is an atmospheric but ultimately disappointing title that will leave most LucasArts fans hoping *Jedi Knight* fares better.



Edge rating:

Five out of ten

Format: **PC**	
Publisher: **LucasArts**	Developer: **In-house**
Price: **£30**	Release: **Out now**

Independence Day

EA's *Independence Day* licence, though potentially lucrative, was inevitably a proverbial albatross around the neck of developer Radical. With creativity no doubt hamstrung by what was essentially a special effects vehicle, a plane-based shoot 'em up was perhaps the lesser of genre evils to adopt. Eschewing the basic *Afterburner* format, *ID4* utilises almost fully 360° movement as a basis for blasting action.

With external or internal views and mission objectives insinuating flight sim aspirations, it's disappointing that Radical has overlooked the basics of enjoyable airborne arcade combat. *Independence Day* suffers from over-fast enemy craft and over-sensitive plane controls, and to keep an alien craft on-screen for more than a few seconds proves to be a real achievement. Despite this, the homing missiles equipped on all available fighters invariably destroy all assailants with a minimum of targeting. With ordinance-boosting collectables easy to acquire, simple button bashing often leads to unsatisfying level progression.

Graphically, pop-up and other inadequacies are all faults suffered by the game's ambitious 3D graphics engine, but there's no denying that swooping between Las Vegas casinos or shooting the Statue of Liberty is going to offer some entertainment to the easily pleased.

Sadly, though, in keeping with its licence, *Independence Day* lacks substance. Bereft of its parent's glorious effects (which, ironically, *Star Fox 64* manages to emulate magnificently), EA's game is very weak indeed.

Edge rating:

Three out of ten







Sadly, *ID4* is nothing more than a shallow shoot 'em up

Format: **Saturn**	
Publisher: **Electronic Arts**	Developer: **Radical**
Price: **£45**	Release: **Out now**

Carmageddon



Players must monitor damage levels closely; paying cash for repairs is an essential undertaking







Yet another hapless victim meets his maker (main). Presumably urged on by its appearance in big-money successes such as *Mortal Kombat*, *Carmageddon* is blood-obsessed (above left)

With *Carmageddon*, SCi has produced a game that will please and anger in equal measure.

Using themes explored most famously in the '70s Stallone movie, 'Death Race 2000', the challenge here is to race cars and deal death. Each of the 36 routes across 11 different maps is littered with pedestrians and cows, which, when driven into, collapse in a shower of the blood, rewarding the driver with time and cash bonuses. Money is used to improve cars between races (increasing armour, engine speed and 'offensive' power – an indication of the amount of damage you can do to computer drivers) or perform repairs during a race.

Colliding with pedestrians in unusual or exciting ways (reversing into them, striking them while performing a handbrake turn or piledriving them into a brick wall, to name but a few approaches) brings extra bonuses and more blood, something that will consolidate *Carmageddon*'s chances of offending.

There are no doubt thousands of gamers who relish such morally bankrupt gameplay, though, and *Carmageddon*'s approach can indeed prove to be entertaining in a rather perverse fashion.

Technically, the physics model at work here is impressive, cars spinning as they tumble off the edges of cliffs appearing especially realistic. SCi's 3D engine isn't without fault, however: *Carmageddon*'s SVGA mode renders the action all but unplayable even on a P200. Fortunately, even in VGA mode, the game is aesthetically sound.



Potential victims aren't necessarily in the habit of simply waiting around to be mown down...

While the oneplayer game proves entertaining, a selection of multiplayer options constitute the most interesting set-ups. Up to six players can be bundled into a deathmatch arena, the goal being to remain the last competitor alive or to kill more pedestrians than your opponent(s). Playing against other human drivers certainly makes gives the action another element of appeal for a few hours, but, of course, this is far from being a *Quake* or *Red Alert* replacement.

Carmageddon has been slickly put together and has some welcome touches (notably power-ups, a decent level of detail and the option to drive *anywhere* over the game's environments) but it is flawed simply because of the limitations of the stunts that can be performed. Exhaust these and there is little reason to return to the game. E

Edge rating:

Six out of ten

Gruesomely, blood trails are left behind by your vehicle's wheels. SCi is certainly courting controversy

Format: **PC**	Publisher: **SCi**	
Developer: **In-house**	Price: **£40**	Release: **Out now**

iQ





The player must clear the area before space runs out

Although psychology textbooks would insist on another definition, as far as this PlayStation title is concerned the *iQ* monicker stands for Intelligent Qube.

IQ is one of those occasional titles that defies rational anlysis. An elementary puzzle game in the *Tetris* mould, it makes no attempt to shatter the perception that such games must look singularly dull. The player stands on a huge rectangular block divided into rows of cubes. In front of him a separate group of cubes tumble forward menacingly, a row at a time, and must be destroyed (by selecting an area on the block's surface and detonating a cube as it passes over it) before they reach the edge of the block.

Green cubes act as bombs, destroying a wider area, and can be used tactically so as to form a chain-reaction effect, whereas getting rid of the black cubes collapses one of the block's rows, reducing the playing area. Conversely, perfectly completing an attack wave will add a new row. As the levels progress, the relentless pace of the cubes increases while the player has less space within which to manoeuvre. Falling off the edge will end the game.

A twoplayer battle mode and wonderful – yet totally inappropriate – in-game music complete the package. Despite its simplicity, *iQ* is a strangely compelling experience.



Every perfect round will add a new row of cubes which gives the player just enough room to survive the next cubic attack wave

Edge rating:

Seven out of ten

Format: **PlayStation**	
Publisher: **SCE**	Developer: **In-house**
Price: **¥5,800 (£30)**	Release: **Out now (Japan)**

Tail of the Sun

As peculiar as it may sound, the ultimate goal of this game is to build a tower of mammoths' tusks in order to reach the tail of the sun. This, as it turns out, is not nearly so easy as might initially be imagined.

Given the indisputable fact that mammoths are extinct, the setting for *Tail of the Sun* is obviously back in prehistoric times. As a brave hunter chosen by a small, primitive tribe, the player must scour the land in search of food, allowing the tribe to grow and evolve. But the vast world is full of danger: wild beasts have to be fought, hazardous weather must endured, and deep oceans crossed without drowning.

Periodically, the tribe's culture level increases and a better weapon becomes available. Yet only when the hunter has gathered enough experience should mammoths be targeted. When hunters die (either from an animal attack or old age), the player may pick any other member of the tribe to continue the quest.

While the core idea is sound, most of the time the game's environment is painfully desolate and the player's character horribly difficult to control. The inclusion of some tidily realised AI is not enough to redress the balance.

Commendable as the concept is, *Tail of the Sun* is let down by sloppy execution. It is neither exciting nor substantial enough to persuade the player to overlook its glaring weaknesses.

Edge rating:

Five out of ten







***Tail*'s environment hardly ever bristles with activity**

Format: **PlayStation**	
Publisher: **SCEA**	Developer: **Artdink**
Price: **$45 (£30)**	Release: **Out now (US)**

Testscreen round-up

Epidemic
PlayStation

Publisher	SCEE
Release	Out now
Price	£35

Epidemic, the western incarnation of *Kileak the Blood 2*, is a mix of Psygnosis' *Lifeforce Tenka* and *Defcon 5*, Millenium Interactive's somewhat misguided attempt to produce the thinking man's *Doom*. Like *Defcon 5*, the player must wander around an anonymous-looking futuristic environment at an excruciatingly slow pace. In common with *Tenka*, there are simple robots to blast along the way and various colour-coded keys to find in order to progress.

The problem for games like this is that they lack either the depth to engage the mind fully or the originality and pace to provide a decent firefight. The results are often, as here, a game that falls between two genres and never really manages to pick itself up. The graphics are passable, the music innocuous and the enemies varied for the first few levels; and to be fair it does create a dark, futuristic atmosphere, but *Epidemic* is unlikely to prove infectious.

Edge rating: Six out of ten



Need for Speed 2
PlayStation/PC

Publisher	Electronic Arts
Release	Out now
Price	£45

After the excellent 3DO original, *Need For Speed 2* is something of a let down. Where 3DO *NFS* had complex models, great tracks and beautiful scenery, *NFS2* can barely muster the energy for some half-decent models, a couple of stunt sections and a poor frame rate in its PC incarnation (with no 3D card support to boost performance). On the PlayStation, where titles like *Rage Racer* prove that solid-looking scenery, well-designed tracks and subtle handling are perfectly possible, this sequel looks particularly weak.

Many courses are uninspired, with the overly long straights seemingly devoid of any opposition, while car handling seems to vary little between models. All are frustratingly difficult to keep on the road and feel weightless in the way associated with old sprite-based racers. The designers try to make up for it with an almost pedantic level of detail, but the end result is still a disappointing one.

Edge rating: Five out of ten



Swagman
PlayStation

Publisher	Core Design
Release	Out now
Price	£45

In a marked departure from *Tomb Raider*, Core Design has turned its energies to the overhead-viewed genre.

In the resultant game, the player assumes the role of Zack, a bumbling little lad on a mission to free his sister and friends from the eponymous Swagman and his sleep-stealing hordes.

Gameplay, for the most part, consists of simply wandering through levels, trying key after key, while attacking enemies with a magic torch.

With its cutesy style and Tim Burton-inspired graphics, *Swagman* tries hard but fails chiefly because of badly designed gameplay. Frustrating enemies and an incredibly unforgiving control system conspire to make it more often a chore than a pleasure.

Swagman's designers have claimed that they were looking to make it feel like the 16bit classic *Zelda*; unfortunately it simply feels 16bit.

Edge rating: Five out of ten



Formula Karts
PC

Publisher	Sega
Release	Out now
Price	£30

Curiously for Sega, still fighting to establish the Saturn as a genuine contender in the next gen console stakes, *Formula Karts* isn't a conversion from any other platform. The Saturn's loss is not the PC's gain, however, as this pedestrian racer offers no improvements on previous examples of the genre.

While the year-old *Manic Karts* and *Virtual Karts* managed at least to convey the sense of speed and danger involved with cornering at 30mph on what amounts to little more than a soapbox on wheels, *Formula Karts* has the player chugging monotonously around tracks which are too similar, against opponents who pose little or no challenge.

Basic, chunky graphics, the lack of a decent third-person viewpoint and the fact that crashing is impossible are all unforgivable failings. Sega has ultimately produced a shoddy racer that should be avoided.

Edge rating: Four out of ten



The Crow: City of Angels
Saturn

Publisher	Acclaim
Release	Out now
Price	£40

The brawl-method beat 'em up, characterised by the likes of *Double Dragon* and *Streets of Rage*, is currently enjoying a minor renaissance. Sega's *Die Hard Arcade* and Core's forthcoming *Fighting Force* are two examples of a genre bridging the gap between sprite and polygon game engines.

Acclaim's *The Crow: City of Angels*, by contrast, is a dire reminder that 3D does not always lend itself to solid gameplay. *The Crow* offers limited moves and rotational controls over prerendered locations. Using an astonishingly basic combat model, kicks and punches inexplicably pass through assailants.

The indistinct nature of *The Crow*'s animations means that, very often, aligning your character with opponents is down to luck. Awful collision detection, repetitive gameplay and the absence of a twoplayer mode make Acclaim's licence one of the worst Saturn releases to date.

Edge rating: Two out of ten



Raiden DX
PlayStation

Publisher	Seibu Kaihatsu
Release	Out now (Japan)
Price	¥5,800 (£30)

Despite the design and structural shortcomings in the original game, *Raiden Project* was an impressive demonstration of the PlayStation's rarely exploited 2D abilities. This release is, in fact, a conversion of the *Raiden DX* coin-op, a game that was essentially little more than a subtle reworking of *Raiden II* from the original PlayStation disc.

A choice between training, novice and expert modes now staggers the full suite of levels, and the only visible enhancements are tweaks to backdrops and some of the boss animations. Explosions are just as magnificently handled with exceptional levels of detail (defeated enemies drop out of the sky to take out buildings, shrapnel spins off realistically, etc) but ultimately this is all *Raiden* has ever stood for and is undermined (as the original was) by the infinite continues given to the player. A game purely for extreme fans of the series, then.

Edge rating: Six out of ten



Remembering SID

Though the emulation scene chiefly focuses on recreating games of old, a number of underground coders are obsessed with only *parts* of old games – their music.

Edge has been tinkering with SIDPLAY (below), a PC package written by Adam Lorentzon (and converted to the Mac by Andreas Varga) which emulates the Commodore 64's legendary SID sound chip.

The program, which even includes mixing, oscilloscope, filter and spectrum analyzer functions, plays back C64 tunes using the true, original data, so ageing game music connoisseurs should not be able to differentiate between these emulations and the real things.

Visit http://www.geocities.com/SiliconValley/Lakes/5147/ (or http://stud1.tuwien.ac.at/~e9426444/sidplay/ for the Mac version) on the Internet to recreate the classic soundtracks from games such as *Parallax*, *Ghouls 'n' Ghosts*, *Master of Magic*, *Bionic Commandos*, *Knucklebusters* and many more...



Star Fox

In the same month that *Star Fox 64* flexes its 64bit biceps, Edge remembers the game that kickstarted console 3D...

The arrival of *Star Fox* in 1993 was a landmark in Nintendo history. As the first work-out for the Argonaut-designed Super FX RISC chip, it introduced the concept of a 3D polygon space combat game to a console audience brought up on a diet of 2D bitmap images.

Other than revolutionary visuals, though, *Star Fox*'s real strength is its atmosphere. The inclusion of the three other squadron members – Peppy, Slippy, and Falco – gives the player a real sense of belonging to a team; continually ignoring their pleas for help will eventually see their destruction, ensuring frantic combat sequences ensue as the player desperately tries to save his companions as well as himself.

Despite its technical accomplishments, *Star Fox* is limited by its 'on rails' approach. Some sideways movement creates the initial illusion of flying within an open environment, but this is shattered after prolonged play. Fortunately, the inclusion of alternate routes and bonus levels significantly increases the game's long term appeal.

Star Fox remains an enjoyable, technically accomplished 3D shoot 'em up whose gameplay represented the dawn of a brave new era for Nintendo's design teams.













Publisher: Nintendo	1993	No 16
Developer: In-house/Argonaut	SNES	

EMU

The PC coin-op emulation scene continues to expand at a lightning pace. This month Edge looks at an example capable of delivering near-perfect versions of vector graphics gems

The second of the major multi-game emulators to be written for the PC, Neil Bradley's *EMU* belies its uninspiring title with some exceptionally impressive coding of some of the most popular vector-graphics coin-ops of the '80s. (Support for non-vector games is also built into *EMU*, but is still at a comparatively primitive level, and will now be undertaken by the project's new main man, Mike Cuddy.)

Discounting the bugged emulations of the Space Invaders family, eight games are covered here: *Asteroids*, *Asteroids Deluxe*, *Battle Zone*, *Black Widow*, *Gravitar*, *Lunar Lander*, *Red Baron* and *Space Duel*. The first three are the best-known and should need no introduction to **Edge** readers, but there's much of interest in the others also.

Lunar Lander was one of the very earliest coin-ops, and remains among the simplest – 'land your ship safely on the moon's surface' is the entire plot and game structure, and controls are limited to rotating and thrusting in an attempt to alight safely on one of the tiny flat areas on the craggy lunar landscape. The game is eerily atmospheric, though, loaded with tension in the near-total silence, and it still provides a challenge.

Gravitar took *Lunar Lander* a logical stage further, and pioneered the *Thrust* genre which would later prove hugely popular on home computers (and give birth to *Oids* on the Atari ST, one of the greatest lost classics ever). The nerve required to battle through later stages with reverse gravity and invisible planet surfaces is phenomenal.

Black Widow predates *Robotron* with its two-joystick all-out blasting action, and the spider's-web setting suits the graphic style perfectly. *Red Baron* is a straightforward biplane dogfighting game, and bringing up the rear is *Space Duel*, an extremely obscure old Atari game which can be played at its most basic as a oneplayer *Asteroids*-style shoot 'em up. The fascinating aspects, though, are found in the other modes available, in which one player can control two ships joined by an elastic band, or two players can control two joined ships independently. Excellent coordination and a good understanding of physics are required to make any progress, and the game's rewarding but demanding gameplay was probably responsible for its total commercial failure.

This is a near-flawless emulator (some of the games don't have full sound yet), loaded with options (for controls, display, and all the coin-op dipswitches), and, like Dave Spicer's *Sparcade* (see **E**44), is available for download from the Internet completely free of charge (and even if you're not connected yourself, a trip to the local net cafe with a single floppy disk will enable you to come away with the whole thing in your pocket). Any PC owner worth their salt would be daft to miss it.

Format:	PC
Publisher:	n/a
Developer:	Neil Bradley
Release:	Out now (Internet)
Origin:	UK







EMU* really is a clever slice of PC code, recreating vector graphics coin-ops such as (from left) *Black Widow*, *Battle Zone* and *Gravitar

Gallery

Artwork from games produced in the UK (*Colony Wars*), the US (*Pax Inperia: Eminent Domain*) and Japan (*Metal Gear*) come together in **Edge**'s regular examination of the ever-varied, always intriguing CGI scene



Spacecraft are a favourite subject for CG artists and game designers alike, and have become the staple content for rendered intros since they first appeared with the likes of *Microcosm*. Few approach the quality seen here in this still from the opening sequence of Psygnosis' forthcoming space combat title, *Colony Wars*. The lettering on the ship betrays its stylistic heritage – artist Lee Carus produced all the rendered art for ground-breaking racer, *Wipeout*.

The in-game graphics will also be impressive, as *Colony Wars* will be one of the few PlayStation titles to take advantage of the machine's intermediate 512x240 mode.

All images rendered on Silicon Graphics workstations in Softimage by Lee Carus







Konami's *Metal Gear* is another example of the stylistic consistency displayed in many Japanese titles. The lead character, Solid Snake (pictured), has been designed by manga supremo Kojima-san, while the rendering duties were undertaken by an in-house SGI team



Another image from Colony Wars. The alien ships and lone fighter, in particular, are hugely reminiscent of the art of Nintendo's classic *Star Fox*. Carus is one of the few western CG artists to really understand the quintessential Japanese style that's such a rich source of inspiration for videogame art. Games such as *Wipeout* display a level to detail and a visual continuity sadly lacking in many US and European titles.

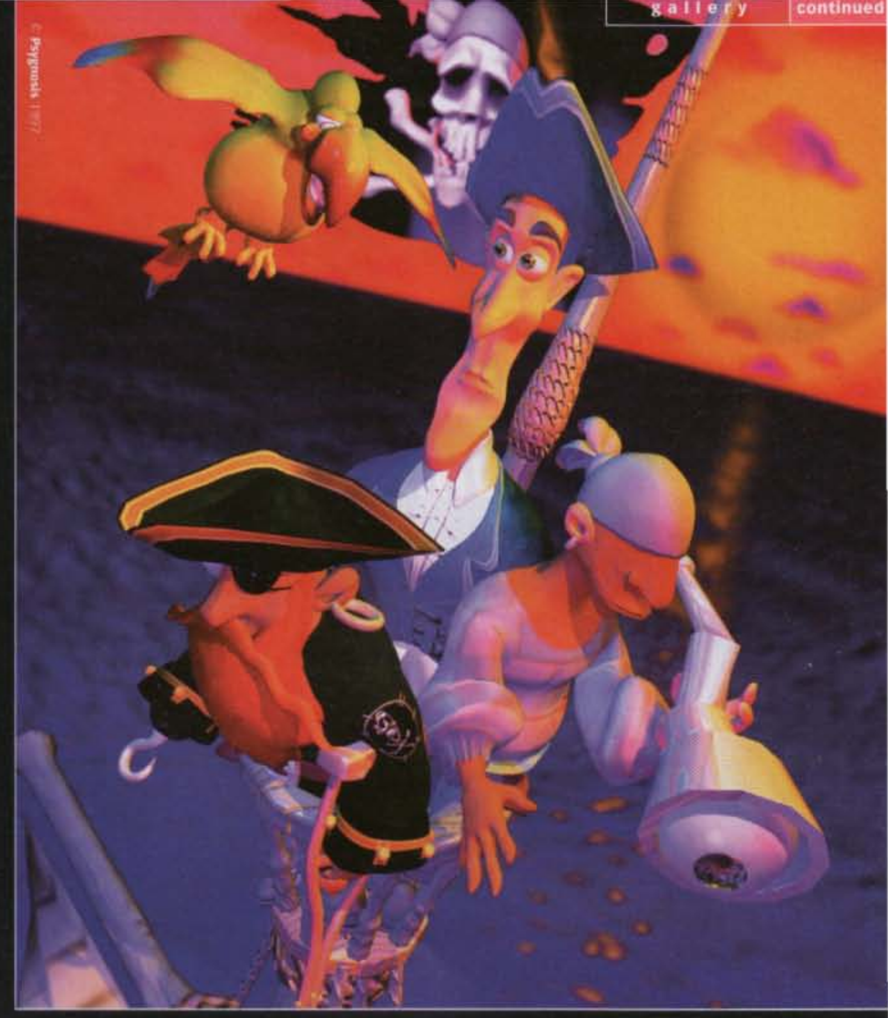
Image created by Lee Carus on Silicon Graphics workstations running Softimage

Overboard **(right), from developer of the year, Psygnosis, takes its visual cues from the likes of LucasArts' *Monkey Island*. Artist Andy Whitely tapped into the cartoon feel of the title to create a number of colourful and humorous in-game sequences, such as this one of a generic pirate crew.**

The game is an arcade-style action title set on the high seas, encouraging the player to use every means at their disposal, fair or otherwise (mostly the latter), to rule the waves.

Rendered on a Silicon Graphics workstation in Softimage. Image created by Andy Whiteley





Another space-themed composition (left), this time from T•HQ's promising Internet multiplayer PC title, *Pax Imperia: Eminent Domain*, currently in development at Heliotrope Studios and scheduled for a September release

Image (left) rendered in *Lightwave* by Heliotrope Studios, USA



This superbly lit racing image is taken from the intro of the forthcoming *F1 '97*. Developed by Bizarre Creations for Psygnosis, the artists describe this highly detailed still as 'work in progress'. 'It's just a frame sequence from the intro, and it suffers a bit on its own,' says artist Halli Bjornsson. 'What we're really trying to do here is capture the atmosphere and exhilaration of Formula One, rather than the more descriptive, detailed parts.'

Rendered on Silicon Graphics workstations using Softimage. Image created by Halli Bjornsson, with assistance from Steve Heaney and Mark Akester of Bizarre Creations

DEVELOP

VIDEOGAME CREATION UNDER THE MICROSCOPE

Californian conferencing

At the CGDC, Intel presented the Best Games, Technologies and Implementation Awards...

Best Prerendered Art:
Zork Nemesis
Best Animation:
Tomb Raider
Best Adaptation of Linear Media:
I Have No Mouth and I Must Scream
Best Script, Story or Interactive Writing:
You Don't Know Jack XL
Best Use of Video:
Wing Commander IV
Sound Effects:
Quake
Best Use of Innovative Technology:
Super Mario 64
Best Console Game:
Super Mario 64
Best Simulation Game:
Mechwarrior II: Mercenaries
Best Music or Soundtrack:
Quake
Best Strategy/War Game:
Command & Conquer: Red Alert
Best PC/Mac Game:
Civilization II
Best Arcade Game:
Virtua Fighter 3
Best Educational Game:
Freddi Fish II
Best Action Game:
Duke Nukem 3D
Best Sports Game:
NHL Hockey '97
Best Adventure Game/RPG:
Elder Scrolls: Daggerfall
Best New Technology:
N64 from Nintendo
Best Trivia or Puzzle Game:
You Don't Know Jack XL
On-Line/Internet Game:
Quake
Best Game of 1996:
Super Mario 64

Boozy parties may have kept visitors up all night, but the celebratory spirit didn't prevent this year's Computer Game Developer's Conference from being a true meeting of the minds for game creators.

The agenda was certianly tightly packed. CGDC hosted an all-day class on Friday April 25 on managing game development, and classic conference classes (April 25-29) covered everything from progamming and production to business concerns and legal issues pertinent to the industry. Keynote speakers at the show included John Romero (see **Edge**'s interview with the id-gone-Ion man in **E**45), Chris Roberts and Nolan Bushnell. Plus, intensive two-day tutorials focused on object-oriented game design in Lingo, creating online games with Java, *Softimage* development tools and techniques, and *3D Studio Max*. One-day tutorials covered OpenGL, *Windows* programming, *Debabelizer* and modelling.

Several related events enriched this year's CGDC. 3Dfx hosted Immersion '97 to help developers 'master the magic' of Voodoo; TEN hosted a developer day, with sessions zeroing in on server architecture, its SDK and other enabling technologies; and Microsoft got in on the action, capitalising on the presence of so many developers with a DirectX 5.0 seminar, held the day after the show (April 30) at the Santa Clara Convention Center (to get a beta version of DirectX 5.0, visit www.directx.com).

The show wasn't all serious developer talk, however. Apple sponsored its second annual CGDC Game Olympics, TEN sponsored the *Quake* tournament (in which a, gulp, female gamer beat John Romero) and the Computer Game Artists group exhibited its first CGA Gallery. On Sunday night, various companies' hospitality suites provided booze and an ideal opportunity to schmooze, while on Monday evening, the exhibition floor was similarly flooded with cocktails and music. Then, tipsy attendees went onto the Multimedia Theatre where Intel presented the spotlight awards (see left). Finally, Sony's Carnival followed the award ceremony, offering lucky attendees the chance to gorge on candy floss.

Despite the party atmosphere, however, the CGDC show has been criticised since changing hands a year ago. Formerly put on by the Computer Game Developers' Association (CGDA), the CGDC was known as a small homegrown operation nurtured by the tight-knit sponsoring organisation. Although CGDA has always held and continues to hold a stake in the proceedings, the publisher Miller Freeman Inc took over the show in 1996 and made plans for a growth in attendance. Many people bemoaned these ambitions, arguing that heavy traffic would ruin the independent feel that was once so integral to attendees' enjoyment of it.



***San Francisco Rush* provided a welcome diversion for attendees in between meetings and conferences**

In all truth, the show definitely was more crowded this year and did have more of a corporate feel. While there were still a fair few tie-dyed T-shirts and goatees around, the attendees were more tame and less colourful than those of previous years. The one notable sartorial event was Ernest Adams donning top hat and suspenders to announce his widely expected resignation from a volunteer post at the CGDA. He now plans to devote his full energies to game giant Electronic Arts.

Because of this year's congestion, competitors couldn't avoid each other on the exhibition floor. Matrox, S3, 3Dfx and nVidea were all crowded into one area and forced to be neighbours, while the force-feedback companies seemed to be similarly grouped (Immersion, incidentally, showed a promising force-feedback future with its I-Force 2.0). As for other news, 3Dfx, MMX and DVD seemed to be everywhere, VideoLogic demo'd a high-resolution version of *Wipeout 2097*, which ran at an amazing 1024x768 using Direct3D, and *San Francisco Rush* was all the buzz as attendees competed at arcades near the entrance to the show floor. The arcade and LBE market seems to be booming, a trend that could be helped or hindered by Intel's announcement of its proposed arcade PC standard (see page 8).

Long Beach, Southern California, will be the site of next year's event, mainly because the show is committed to building stronger ties with the entertainment industry. Expect more suits and style next year.

Then, to alternate between the glitz of Hollywood and the silicon savvy of the valley, the show will move to Northern California in '99. Perhaps the dawn of the millenium will bring the spirit of CGDC back where it belongs: to the tie-died T-shirts and goatee beards that started it all. **E**





The CGDC was an event full of contrasting industry types – beards met suits met digital evangelists

Licensed to hack: Yaroze's dishonourable ancestors

With the introduction of Sony's Yaroze system, budding games designers are getting the chance to try their hand at programming console games at home. For others, however, this idea is nothing new...

Traditionally, the only way to develop for a major console was to get a licence and hardware from the manufacturer, a time-consuming and expensive process – especially as those companies are often (understandably) unenthusiastic about hackers getting their hands on hardware secrets. Even once a licence has been obtained, most companies require a Non-Disclosure Agreement (NDA) to be signed, so equipment can only be used for the purpose it was intended.

A while back, however, enthusiastic users started trying to determine the inner workings of consoles without the technical support and documentation provided to licensees. Some progress was made with older machines, but small groups or individuals were limited in what they could achieve. With the advent of BBS systems and the Internet, however, together with the sharing of information they allow, it is now possible for large-scale hardware-hacking projects to work.

Another contributing factor in the console programming revolution was software piracy – more specifically, the availability of cartridge copying devices (usually from Hong Kong or China), normally sold as 'backup devices'. These copiers allowed users to dump the contents of a cartridge's ROM chips onto floppy disk, reloading the ROM data into the copier unit later so the game could be played on the console. What enterprising programmers realised, though, was that this is essentially what the official development kits do, allowing you to transfer game code and data from a development machine (normally a PC) onto the console, then run it. By dumping commercial game cartridges to disk, examining and modifying the code before reloading it, people were able to create customised versions of games, learning the secrets of the hardware needed to create their own games. In fact, this modifying of existing games has sometimes lead to interesting results in itself. For example, a patch is available to fix the code in SNES RPG *Final Fantasy III*, allowing the NTSC versions to be played on a PAL machine without crashing.

Most consoles have been hacked at some point, but only a handful have seen the effort required to recreate, from scratch, the tools (assemblers, graphics converters) required to produce a working game. The greatest amount of material is for the SNES, Game Boy and Mega Drive, as these were around when people first realised the potential of these closed systems. The SNES and Mega Drive are both relatively simple consoles, each containing two processors and a few custom graphics chips. A quick search of the Internet reveals a lot of technical information and useful programs for both these machines, including everything needed to write simple programs, and even tutorials on basic techniques.

Often the first software produced for a machine takes the form of intros or trainers, short graphical or musical demos added to the start of pirate copies of games with built-in cheat menus or other game enhancements. Software pirates are often the first with both the necessary copier hardware to examine and modify games and the technical knowledge to write the software. Archives can now be found with collections of the most impressive intros (without the games they were used with); in some cases the effects produced surpass those found in the games themselves, ironically.

The Game Boy deserves a separate mention, as it is probably the console with the most programming support currently available; unlike the other older-generation consoles, more material is still being developed for it. The Game Boy's main attraction is its extremely simple internal architecture – making programming easy – coupled with the fact that it is a handheld machine. This allows for some interesting development and project ideas, such as using a Game Boy to control a mobile robot. There is now even a C compiler that produces code for the Game Boy, a BASIC language interpreter and a machine-code level debugging tool. Circuitry has been designed to allow the Game Boy to be interfaced to a variety of devices, and to be connected to a PC for data transfer. Indeed, the Game Boy is a very useful device for serious purposes as well as games – it is an extremely cheap way to obtain a Z80 microprocessor board and display with all required accessory circuitry for use in control systems.

Today's three major console systems – PlayStation, Saturn, N64 – have not yet seen as much progress as the older consoles, possibly because of their relative infancy and technical constraints. In order to successfully run a home-made PlayStation or Saturn game, a CD-writer must be used to make a CD copy of the game code and data, an extremely slow and costly process when considering how many modifications and re-tests even a small program goes through. However, various tools have started appearing, such as basic assemblers and disassemblers; and technical documentation, currently focused mainly around areas such as defeating the country-code lockout on the PlayStation, is available. There is even a utility to convert PlayStation-format movie files into AVI files for playback on a PC or Mac.

While a lot of technical research has taken place, only a handful of complete amateur games have been written and released for consoles, and these often fail to impress. Perhaps the biggest contribution Sony can make in providing hardware, software and information is by shifting the emphasis from pure research and experimentation to the actual creation of playable games. Its approach of providing a website for people to show off demos, and the possibility of games being published (try persuading a company to publish a game written using an illegal cartridge copier), should act as an incentive for all the programmers out there. **Edge** can only hope that the Yaroze and similar systems can breath some fresh air into the industry by allowing a whole new range of potential game designers to show their talents.

An underground SNES title (above); web support (right)

Places to visit:

Damaged Cybernetics http://www.futureone.com/~damaged/
Jeff Frohwein's Game Boy Tech Page http://hiway.net/~jfrohwei/gameboy/
BamBam on the Net http://www.universal.nl/users/magic/
Sony Europe http://www.scee.sony.co.uk/

SGI OCTANE



Silicon Graphics' latest high-end desktop workstation, Octane, redefines 3D graphics work. Prices start at £20,310 – that buys a machine which does away with modifying wire-frame objects and waiting for them to be drawn as solid models. Instead, impressively complex scenes can be edited while simultaneously being rendered and animated in realtime.

Inside the aquamarine case are either one or two 64bit RISC R10000 processors, running at 175 or 195 MHz. The graphics hardware can draw 1.26 million 25-pixel triangles every second.

Octaine is based on a new architecture called XIO which is responsible for the power that only a year ago meant buying an SGI Onyx for upwards of £100,000. All its subsystems, such as the PCI bus and graphics hardware, plus processor and memory, are connected via a seven-port crossbar switch chip. Every device can communicate with others at a massive peak speed of 1.6 gigabytes per second. Unlike traditional architectures, the speed isn't affected by data that other devices are sending. In contrast, devices in a PC share a single bus that's around seven times slower than a single crossbar port.

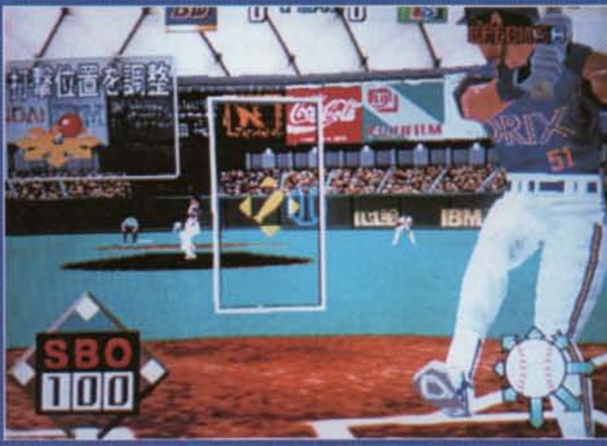
While the Octane will appeal to Silicon Graphics' traditional customers – scientists, movie makers, industrial designers and engineers – only the richest game developers can afford one. In any case, neither processor or graphics systems are much faster than a Pentium Pro PC with £6,000 of graphics hardware. Most softcos, then, are buying fast Pentium Pros running *Windows NT* or the O2, SGI's latest low-cost workstation, now priced at less than £5,000.

Contact Silicon Graphics on 01734 257500 or visit the website www-europe.sgi.com/International/UK/

More proof this month of oriental dominance of the arcade market, with Japanese developers even taking on the Americans at their own game, literally

Dynamite **Baseball** 97





***Dynamite Baseball 97* retains its predecessor's control method, which was both accurate and realistic, but now runs at 60fps**





Camera views switch effortlessly from wide angle to close-up

Developer:	Sega (AM1)
Release:	TBA
Origin:	Japan

Somewhat surprisingly, baseball is just as popular in Japan as it is in the States. That may be neither here nor there in the real world, but in the context of videogames it means that producing arcade titles based on the American sport becomes a commercially viable option for big Japanese developers.

This goes some way towards explaining why Sega has decided to revamp its previously STV-based game *Final Arch* (also the subject of a Saturn conversion) using Model 2 technology.

Sega's AM1 division, whose previous successes include the jetbike game *Wave Runner*, is responsible for the project and seems determined to prove that there's plenty of potential left in the Model 2 board.

Dynamite Baseball 97 has retained the control method of the original game, which allows players realistic and accurate control, particularly over batting. Indeed, the new version differs little from its predecessor – the main changes are purely cosmetic, with characters now boasting a higher polygon count as well as sporting faces based on real players. Realism is boosted by camera angles that are calculated to evoke the atmosphere of television broadcasts.

With up-to-date 1997 season stats adding to the real-world feel, *Dynamite Baseball 97* is a comprehensive, accurate and visually appealing title. It's hardly likely to take British arcades by storm, but it will undoubtedly prove popular with dedicated fans of the sport.





Players have a higher polygon count and are shaped to resemble real-life stars of the sport. TV-like camera angles add to the atmosphere





Developer:	Sega (AM2)
Release:	TBA (UK)
Origin:	Japan

Sega's marketing machine rolls on: first, the company licensed the Java tea can for use in *Virtua Fighter Kids*, it's tied up a deal with Coca-Cola for *Top Skater*, and *Virtua Striker 2* uses Adidas's AS551 Questra ball

Virtua Striker 2

Following **Edge**'s first look at Sega's next Model 3 game two issues ago, the company has been demonstrating the game to football-crazy punters in Japan.

The game's obvious strength is its use of Sega's Model 3 board, allowing for super-fluid, motion-captured animation, backed up by 24 different teams to choose from, increased CPU AI, an increased range of tactics, subtly tuned player actions and even an option to play matches at night.

Sega is making the sports coin-op market its own, and *Virtua Striker 2* can only reinforce its hold.



Maximum Force






It's no secret that Atari's *Area 51* is one of the most graphically weak yet successful coin-ops to date. Its successor, which makes no more effort to match its technically superior competition from Sega and Namco, will probably prove to be another high-earning arcade title in the United States



***Maximum Force*'s digitised sprites, plus fire and broken glass effects, give the game a realistic look and feel. *Area 51* nuts will be in heaven**

In a market dominated by Sega and Namco, it is surprising that Atari's *Area 51* has proved more popular in the States than *Virtua Cop 2* or *Time Crisis*, despite its graphical inferiority to polygon-based arcade lightgun shoot 'em ups. Cynics might attribute its success to the fact that it used cheaper technology than its technically superior rivals. Yet a sequel seemed inevitable, and Atari has obliged.

Like its predecessor, *Maximum Force* offers prerendered twoplayer action, with a couple of missions to choose from, but this time players are up against enemies such as terrorists in a weapon factory and robbers in a bank. However, the gameplay still involves collecting power-ups and trying not to take out dopey members of the public. Atari is also promising more than a thousand targets and 30 secret rooms to keep players occupied.

It will be interesting to see how the game's Japanese distributor, SNK, competes with the national giants.



More than a thousand targets should hopefully make this more memorable than *Area 51*

Developer:	Atari
Release:	TBA (UK)
Origin:	US

Marvel S.H. vs **Street Fighter**



Capcom's ties with Marvel have created a logical extension of its beat 'em up series

Marvel Super Heroes vs Street Fighter is the second title in Capcom's 'vs' series (the first featured the X-Men versus the *Street Fighter* gang), and pits the likes of Spiderman, Captain America and The Hulk against *Street Fighter*'s finest.

The game, which uses the CPSII board, will include 18 characters, complete with the usual graphically extravagant special moves associated with Capcom's past titles. In addition to the normal fighting modes, a tag battle will allow players to swap between characters mid-round.

The Japanese version of the game will differ from the western release due to the inclusion of an extra character. Norimaro is a caricature of a male high-school student – uniform, glasses, short hair, timid – and is based on a Japanese television presenter, who provided the voice samples for every special move. Norimaro's moves are on the silly side – one involves taking photos, for example (see Big in Japan, **E**45).

Although game shots taken from a video were printed in **E**45, these are the first official pictures released by Capcom.

Developer:	Capcom
Release:	TBA (UK)
Origin:	Japan





Although the distinctly amusing Noriyamo character (above) forms an appealing part of *Marvel Super Heroes vs Street Fighter*'s gameplay in Japan, the character will be removed before the coin-op reaches the west

(viewpoint)

EXPRESS YOURSELF IN EDGE – WRITE TO: LETTERS, EDGE, 30 MONMOUTH STREET, BATH, BA1 2BW
(e-mail: edge@futurenet.co.uk)

Shocked

I was shocked after reading Andrew Giles' letter in **E**44 regarding his love of his UK N64. It seems strange to me that he should enjoy black borders, slower gameplay and a grainy picture. Even though *Mario* does not suffer from the severe problems apparent in the early days of console gaming, where games ran a full 17.5% slower, the differences are still apparent and who is to say that other developers will take the same care over their conversions?

The number of games released in the UK is comparatively small, looking at games as a whole, and limited to a set of popular genres – which is of great grief to RPG fans. Even if a game is released here, there is the issue of the six-month delay; even censorship occasionally rears its ugly head (I have yet to see what they are replacing Li-Long's numchakus with).

As if this was not enough, he was quite content to pay what [at the time of writing] is fast approaching three times the price of a Japanese machine (£85) and £100 more than the German PAL machine (£150). I am sure it is not beyond Nintendo's expertise to install a switch to allow UK gamers with SCART TVs to enjoy the same quality as their American and Japanese counterparts, but if we are content to take and even enjoy what is a punishing regime of compromises, then Nintendo and the other console manufacturers will quite happily deliver.

Ask anyone who disagrees to compare *Tekken 2* or *Street Fighter II* between UK and US/Japanese PlayStations. Arbitrage is our only hope for getting a decent machine at the lowest possible prices, and allowing us a chance to cast a vote in the economic ballot box that the console producers will feel.

Dominic Wong,
Waterlooville, Hants

This may seem picky

Will the ignorance ever end? Being a faithful reader of **Edge**, I was shocked to read Andrew Giles' comments in **E**44 about the differences between the UK and import machines in its supplement.

'Who cares if there are black borders on screen?' I do, and so do many others, and it's not just the borders but also a reduction in speed which ultimately affects the gameplay. Owning an import N64 and working for a major retailer in the UK which stocks the machine, I was able to compare the differences for myself. I found that *Mario* had been considerably reduced in stature to the extent that he had lost his neck, and there was a slight delayed reaction on-screen after pressing the jump button.

This may seem to be picky, but I found it affected my enjoyment of the game, probably because I had played an import version which was devoid of these faults. However, there are many people like myself who only wish to play the games how they were intended to be played, but due to the deficiencies in the official UK machines we are forced to pay the high premium prices of the import market instead of buying official.

Until Nintendo and others resolve the situation, there will always be a flourishing import market in the UK. Furthermore, I did not find **Edge**'s article in any way encouraging the import market – if anything, it seemed to play down the differences: evidence of which can be found in its comparison (**E**43) of the UK and import version of *Super Mario 64* as a 'healthy state of affairs'.

David Pareja,
London

Totally pissed off

UK gamers have had to wait about six months after everyone else for the N64. When it does arrive, it costs more than anywhere in the world. There are only three games available. The screen display is crippled with borders and it only has an RF lead with mono sound (does Nintendo still think everyone in the UK has old-fashioned wooden tellies?). The final kick in the teeth: it goes and cuts the price by £100 just after two months! It's made those who bought one earlier totally pissed off. I know this is the norm in the business – but after only two months? This is a cheap, short-term strategy and not worth the £200,000 or so profit that has initially been made. Nintendo are definitely going to have to spend more than that to buy back the loyalty of UK gamers.

We needn't put up with this. I urge everyone to boycott all UK PAL machines. Buy an import N64. You even get a decent display (no borders, full speed) and new games come out sooner.

Gary Lee,
address withheld

Wake up Nintendo

In the last issue of **Edge** a reader was complaining that the magazine should give more support to the PAL version of the Nintendo 64, rather than any import machines. I totally disagree with his point.

To deter customers from buying import machines and purchasing a UK N64, a possible solution to this problem would be to change the specification of UK machines. Nintendo should supply NTSC machines with the correct voltage PSU for the European market, and supply a small additional box to convert an NTSC signal to PAL for customers who do not have an NTSC output on their TV. This would eliminate any grey importing.

I appreciate each Nintendo market around the world wants to protect its own patch, but by supplying hardware which detracts from the intended gameplay and picture quality, the current situation is not fair on the consumer.

I have been very impressed by the Nintendo 64 and its software, and I am sure the best is yet to come, but I would not have purchased an import machine if the PAL N64 had offered the same standards set by the US machine and UK price was not as high. Wake up Nintendo.

Ian Barnett,
address withheld

While technically it would be possible for UK machines to run at 60Hz, Nintendo has chosen to follow the same route it pursued with the NES and SNES – a 50Hz standard to ensure compatibility with all TVs.



If it doesn't maximise the potential of its machine, the import market will continue to flourish. Due to delays in UK software release dates, **Edge** reviews imported N64 games, and it's a great shame that UK software is substandard by comparison. Even if the majority of people don't know what they are missing, the N64's graphical edge over its rivals is diluted by the fuzzy RF signal, the screen borders (*Wave Race*, above) and the reduced play speed (especially when Sony and Sega have gone to great lengths to minimise differences between NTSC and software). Currently only Konami seems to have made an effort to address this problem for the N64 with its excellent PAL version of *ISS64*.

Simply a bargain

Looking at Sony's PlayStation now, it is simply a bargain at £130 when you compare it to the overpriced N64, which stands at £250 [at the time of writing]. With Sony now releasing budget games at £20-plus with other games dropping in price, you cannot go wrong, especially if you are about to buy.

In my eyes, the biggest problem with the PlayStation is the amount of mediocre games available, plus games that have been overrated, like *Tomb Raider*, which is too slow, not to mention others which have been a real let-down.

When Sony releases its next system, it needs to make sure there are no mediocre games. At the moment, it is flooding the market with games that I think are not up to the standard and I thought Sony had very strict quality control.

I think that that the PlayStation is a great machine with some good games like Capcom's *Resident Evil* and Namco's *Ridge Racer*. With releases on the way like *Resident Evil 2* and *Time Crisis*, the future looks very promising. But at the end of the day, Sony needs to be more strict with thirdparty companies. In other words, if your game is crap, we simply don't want it.

Gary Osborne,
Middlesbrough, Cleveland

(viewpoint)

A load of hot air

Having been a subscriber to your magazine for over two years, recently there have been two continuing debates that I would like to add my opinions to.

Firstly the PlayStation vs Nintendo 64 debate: I wonder how many PlayStation owners have experienced the N64 and how many of their comments are a load of hot air. I have finished *Mario 64*, *Tomb Raider*, *WaveRace* and *Wipeout* on their respective systems and have to say that the N64's games are far superior, not only graphically but also in control and design.

The second issue is *Mario 64* itself. I have owned or used most of the games consoles since 1988 and would say without a doubt it is the best game that I have played. The two points raised in **E**45's letters section:

1. 'It doesn't excite' – this is not the case, and I have had similar comments from a friend who has not got the patience to continue persevering in certain levels. But the excitement of gaining a star, reaching a new level and being stunned by the creativity is exciting enough. In fact, the closer to 120 you get, the more exciting it is to find a star.

2. 'I find *Mario 64* barren and empty, completely lacking the pace...' – this is also difficult to accept as Nintendo allows freedom of movement to create worlds rather than boring, linear, press-the-button-at-the-right-time 2D platformers. It gives *Mario 64* a new feel.

I believe these are invalid criticisms and just relate to the individual not finding the game perfectly suited to them (it can't please everybody, after all).

I also believe that the ten out of ten score was justified, incidentally.

John Braithwaite,
address withheld

One of our dinos is missing

Upon playing through my copy of *Turok: Dinosaur Hunter* I was most disappointed to find that the huge brachiosaur 'whose head alone is bigger than the raptors' [**E**42] was nowhere to be seen. I phoned Nintendo and they said it had been removed from the game, which left me with a query.

Surely the N64 software sent to you, which is said to be of a reviewable standard, is sent in its final cartridge format, and so any memory problems were cleared up at a much earlier stage. Could you please make clear to us the exact standard of the review software you are sent, and how such an oversight might occur?

Surely **Edge** would not sink to reviewing pre-release quality software just to be first with a review?

Sam Lynn,
Surbiton, Surrey

Due to the nature of magazine and videogame production, reviewing preproduction software is a necessary practice. The majority of games that magazines receive are reviewed either on preproduction gold CD-ROMs or, as in *Turok's* case, on a preproduction ROM cartridge. If all magazines were to wait until final retail copies arrived, then most games would be on sale weeks before reviews appeared. The vast majority of titles reviewed are 100% complete but occasionally games are evaluated with minor changes still too be made by the developers – and these are usually made clear to the reviewer prior to the review.

The copy of *Turok* that **Edge** received lacked



only minor texture details such as its animated cobwebs, and one or two other graphical enhancements. The dinosaur in question (above) was removed from the game because Iguana decided to hold it over for the sequel instead. Sadly **Edge** was not aware of this at the time of assessment. Obviously such an omission is a disappointment, but this kind of situation is a rarity; and fortunately, even without the missing brachiosaur (which, incidentally, was only included as an impressive background effect and was not a boss), *Turok* is still an admirable game and deserving of the nine out of ten that it was awarded.

Piracy is rampant

Until quite recently, intellectual property rights was not an often-discussed issue in my country. But ever since our Prime Minister Datuk Seri Dr Mahathir announced the news on the information superhighway to the world press, the issue of piracy has taken centre stage, particularly about the setting up of a court specially dealing with cases involving copyright laws and laws dealing with the Internet.

That probably sounds good for software creators, publishers and vendors selling legitimate software, but the problem is that piracy is not going away just like that.

Software publishers must contribute to end this problem; a good suggestion would be to lower the price of software by selling the CD game in a plastic case, without a big, decorated box and with the installation instructions on a piece of paper.

The reason piracy is rampant in Asia is because unit costs are high. By lowering the sales price, perhaps we will be seeing more legal products in shops here and not so many £3 *F1GP2*s.

Ong Eu Chin,
Penang, W. Malaysia

While **Edge** would like to see the problem of piracy resolved, it is unrealistic to think that this will happen in the immediate future.

Developing, marketing and distribution costs, as well as retailers' profit margins, represent different proportions of the final price of software. Even with the packaging alternative you suggest, the resulting price reduction would not be substantial enough to allow legitimate software to compete with illegal copies of games.

Bedazzled by glitzy bullshit

Like everyone I only want to own quality games which provide all of the essential ingredients of fun, exhilaration and lastability. Only now and then am I misled by over-hype regarding British games. **Edge** is first to the gallows concerning this issue, as time after time it is bedazzled by the glitzy bullshit surrounding most British games. Take, for example, Psygnosis (Sony): *Tenka* was hyped as if to be some kind of miracle, with the programmers boasting a whole host of technical babble, and now, some time later the severely lacking result. I must also protest at the way your review section is brimming with British games that although obviously grade-B receive high marks and admiration for effort. Does **Edge** really feel obligated to boost the egos of substandard companies because they have had a close association with them in the past? If this is the case, then it isn't unfair on the majority of game players who trust your judgements.

Edge should be more considerate to its readers and expose the truth. it is your duty as a high-profile magazine to inform readers and extinguish the flames of over-hyped garbage. Only then will British companies wake up and decide to invest more money and time into the design stages of games creation.

You may feel I have a grudge against British games, but this is not so. I just want all games to be judged on merit and not on some futile patriotism that will in the short term create a sense of stability and in the long term bring us closer to Japanese domination (which may not be so bad).

Leon James Cory,
Slough, Berkshire

Edge casts a wide and discerning gaze over the global software market and there is little evidence to support your accusations. **Edge** regards UK development highly. Citing *Tenka* as your only example seems odd, too, especially given that the main preview of the game (**E**41) highlighted as many of the game's apparent deficiencies as it did plus points. In this respect Psygnosis was not treated differently to any other company, was never built up unnecessarily or 'hyped', as you put it, and the review in a subsequent issue confirmed some suspicions. **Edge** suspects you are mistaking coverage of games (that may later disappoint) for hype. Clearly there is a big difference.

(Q and A)

WRITE TO Q&A, **EDGE**, 30 MONMOUTH STREET, BATH, BA1 2BW.

Tantamount to extortion

Referring to **Edge**'s supplement 'The State of Play' (E44), Juan Montes [below] of SCEE comments 'I've not seen any N64 games that demonstrate capabilities beyond the PlayStation' and '*Mario* is a good platform game, but that is not a new generation of platform gaming' are ludicrous. Are we to believe that SCEE is going to release a *Mario 64* beater on the PlayStation? I believe his comments might go down well in PlayStation-specific magazines, but **Edge** readers are too enlightened about the game industry to accept his views.

I'm not anti-Sony; the PlayStation is a good console with thirdparty support second only to the PC. I believe the best thing Sony could do to maintain its market share is make sure its next console is backwards-compatible.

As for Sega, a conversion of *VF3* with some sort of hardware-enhancing cartridge-based upgrade would make an outstanding game, but unless the company plans to effectively give upgrades away with the game (like it did with the analogue pad and *NiGHTS*), a lot of people may steer clear (especially with Sega's disastrous Mega CD and 32X upgrades still in mind). Would it not be better for Sega to concede that it is never going to topple the PlayStation, and use this time to try and steal a significant lead over Sony by releasing its next platform earlier (and also make it backwards-compatible)?

Nintendo has also got to get its act together. Although I agree that quality is better than quantity, its current thirdparty support seems a bit too sparse. I cannot really argue about the UK console price itself (remember Sony and Sega's initial console prices...), but the cartridge prices are way too expensive (charging £70 for a game is tantamount to extortion). What happened to the Monopolies and Mergers Commission investigation into cartridge prices?

Nintendo is also not helping itself by ignoring the CD format (losing valuable thirdparty developers and missing out on great games). I think the company should seriously consider releasing a DVD drive instead of the proposed 64DD drive. This would be more suitable, especially considering the N64 is likely to face competition within a couple of years from 64bit consoles, which are likely to use this drive!

Philip Carlin, Wolverhampton, West Midlands



Q I have seen a £300 copying device that runs *Mario 64* off CD. Doesn't this rather invalidate Nintendo's claims that the game could only run off cartridge?

Jim Cartwright, Luton

A Well, given that the Doctor 64 has 128Mbits of RAM, *Mario 64* doesn't run off CD – it is merely loaded into RAM and behaves as if it were on cartridge. Nintendo's claim that the game couldn't run off CD was based on the understanding that its console would contain 4Mb of designated RAM – half the size of *Mario 64*.

Q **1.** Can you explain the difference in appearance between phong lighting and ray tracing?
2. Would it require less computations/processing to have one large polygon as the floor in *Virtua Fighter 2*, for example, texture-mapped to look like a tile surface, or to have each tile as a single flat-shaded polygon?
3. What was the first fully computer-rendered game, be it through a polygon or Silicon Graphics environment, in both arcades and the home?

Paul Thomas, Queensland, Australia

A **1.** Phong lighting creates curved surfaces by calculating extra normals for every single pixel on a polygon, giving the effect of smoothly shaded and rounded surfaces. Ray tracing is a far more processor-intensive operation and involves tracing the path of rays of light from object surfaces and calculating light values for every pixel. It gives the appearance of extremely realistic reflections and would be used for rendering the surface of, say, a metal sphere which reflects its own environment and light intensity. As it involves a huge amount of calculations, realtime raytracing is still some way off.
2. Generally speaking, the more polygons a system has to throw around, the more maths it has to handle. However,as most systems have a size limit on polygons, using as few as possible is the ideal scenario. In the case of the Saturn version of *VF2*, the floor is made up of a single bitmap manipulated by the console's custom scaling hardware – polygons don't even come into it.
3. Psygnosis' *Microcosm* was possibly the first commercially available prerendered title and appeared initially on the FM Towns Marty console. As for realtime polygon examples, **Edge** welcomes suggestions from readers although *The Sentinel* was certainly one of the first computer games to use filled polygons. Atari's *I, Robot* (1984) was perhaps the first coin-op example.

Q You said in one of your earlier issues that M2 would be out by the Summer. Since then, you've been conspicuously quiet on the subject, and I've read nothing in any other magazines to suggest that M2 is even going to happen this year, let alone this Summer. When will the console be out, and what titles will be available for it at launch?

Adam Lancaster, Cleveland

A The latest news on M2, following a distinctly quiet Tokyo Game Show (apart from Warp's *D2* making an appearance), is that M2 is still happening this year. Industry insiders pledged to working with Matsushita claim that full development kits (containing both Power PC chips) have only recently become available, which would put most titles at least into 1998 before completion. Though the Japanese system may well be on sale by Christmas, Trip Hawkins' Studio 3DO has already voiced its own concerns regarding the launch and publicity surrounding M2, defying Matsushita and opting to reveal their first batch of games to journalists in May and also at this year's E3 event.

Q **1.** Following the price cut for the hardware, does Nintendo have any plans to reduce the price of N64 games in the UK?
2. It now seems certain that the 64DD drive won't be relying on *Zelda 64* at launch. In fact, it doesn't seem to have any must-have titles lined up. When will it be released and what is its software launch strategy?

James Newton, Surrey

A **1.** At launch in Japan, the price of games for the console averaged ¥9,800 (£50), but since then prices have been reducing steadily to keep demand high. *Star Fox 64* is just ¥8,700 (£45), but that includes the Jolt Pack. *Turok*, the most expensive UK game to date, has just been released in Japan at Y7,800 (£40), so a software price cut in the UK now seems almost as appropriate as the recent console price slash. Bear in mind, though, that the narrow margins and high costs for European publishers do not bode well for anything too dramatic.
2. The drive is scheduled for a pre-Christmas release in Japan, which means that UK gamers probably won't see anything until Spring '97 at the earliest.

A likely first title would be the much-touted *Creator* or a *Mario Paint* derivative, but until the Japanese launch Nintendo will be spending every penny it can convincing gamers of the benefits of cartridge over CD.

Consequently this mission will probably override its pre-launch publicity for the 64DD. *Zelda*, for example – which was originally slated for a 64DD release – now obviously has a far more important role to play in boosting the N64 cartridge release roster for the latter half of '97 than lying in limbo waiting for the 64DD to finally hit the shelves in Japan.







CD1

Next issue, Edge launches a new interactive entertainment agenda courtesy of a dynamic covermounted CD-ROM. The PC-only disc will be packed with movie demos of forthcoming console, PC and arcade titles, as well as interviews with leading videogame designers. Titles destined for inclusion include *Mission: Impossible* (N64), *Earthworm Jim 3D* (N64), *Robotech* (N64), *Alien vs Predator* (PS), *G-Police* (PS), *Psybadek* (PS), *Populous* 3 (PC), and many more.

Plus, E47 presents an exclusive report on Acclaim's software portfolio which embraces the efforts of leading development lights Iguana and Probe. As well as revealing a wealth of 64bit titles in development, Edge will unveil one of the most eagerly awaited games of the year... *Turok: Dinosaur Hunter 2*.

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